

**GOLDEN PHOENIX MINERALS, INC.
ASHDOWN PROJECT SYLVIA MINE
HUMBOLDT COUNTY, NEVADA**

**Environmental Assessment
NV-020-06-EA-14**

May, 2006

Bureau of Land Management.
Winnemucca Field Office.
5100 East Winnemucca Blvd..
Winnemucca, Nevada 89445

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for
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Ashdown Project Sylvania Mine.
Humboldt County, Nevada

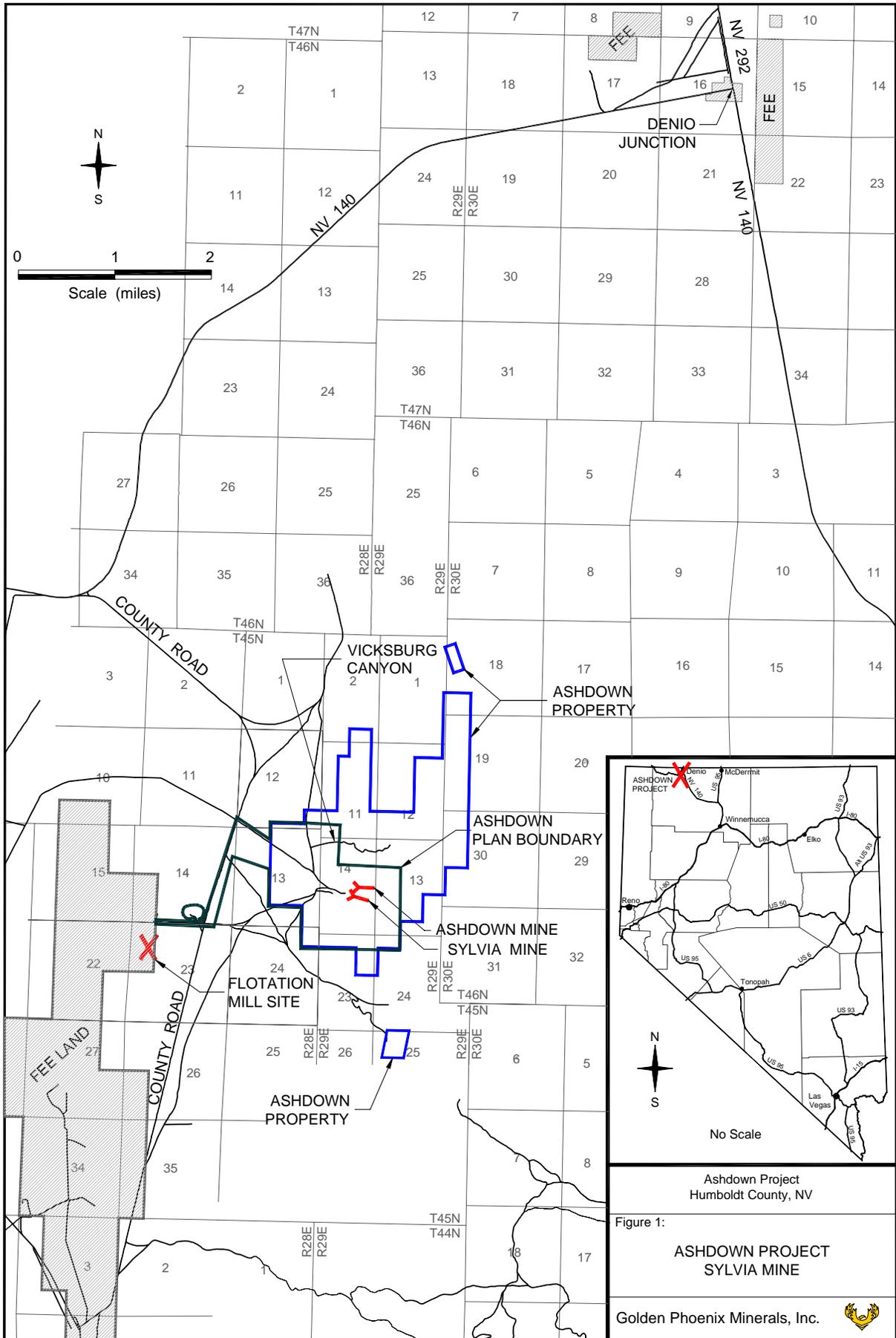
1.0 PURPOSE AND NEED FOR PROPOSED ACTION

1.1 . BACKGROUND

The Ashdown Project mine site is located in northern Humboldt County, Nevada, about 100 road miles northwest of Winnemucca and approximately 9 miles south southwest of Denio Junction (Figures 1 and 2). Under a previous Bureau of Land Management (BLM) surface management notice, Golden Phoenix Minerals, Inc. (GPMI) is currently conducting exploration and underground mine rehabilitation activities at the site. The Company is also in the process of mining a 1000 ton bulk sample of ore for testing.

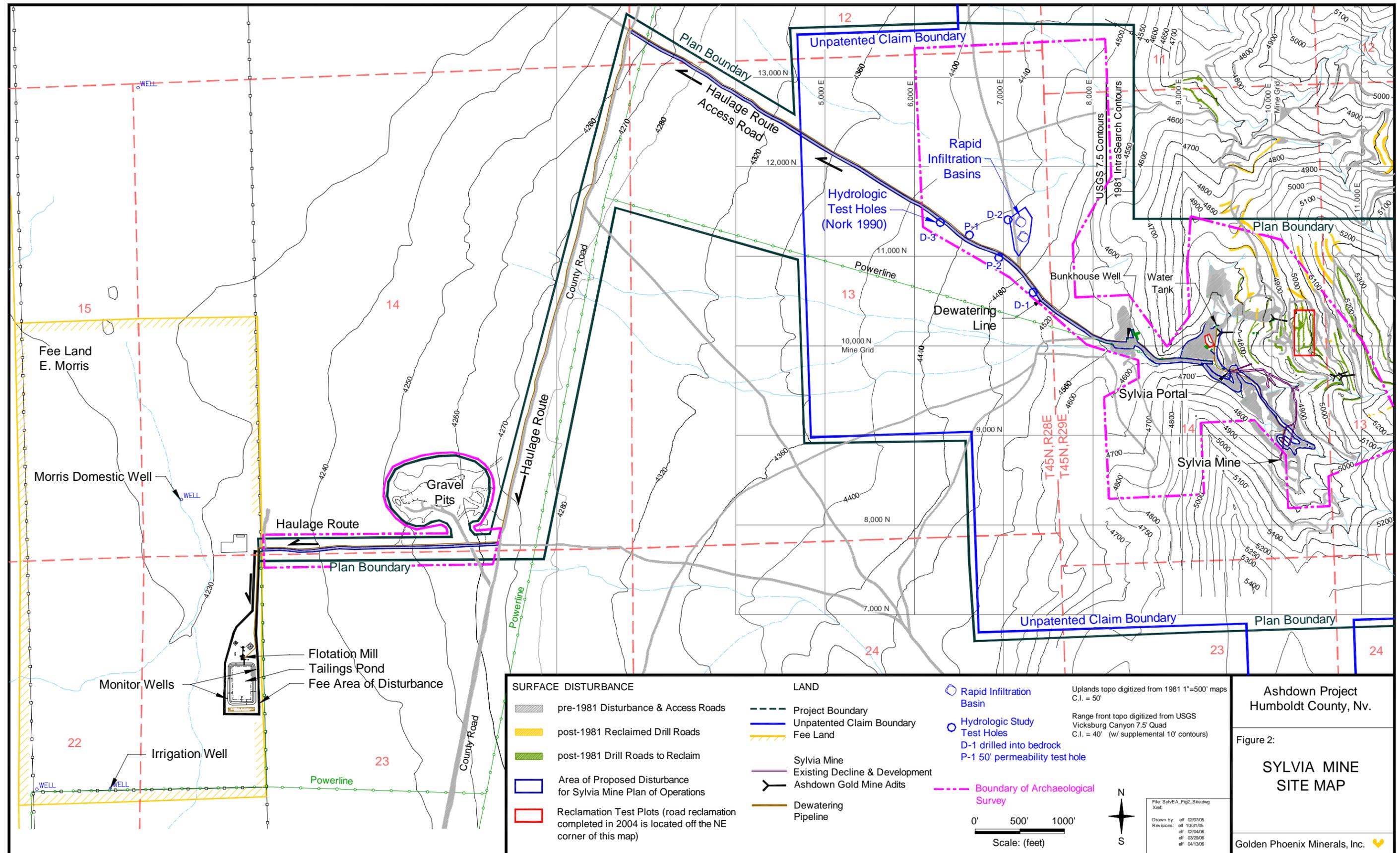
GPMI proposes to develop, construct, and operate an underground molybdenum mine on unpatented mining claims administered by the BLM. The proposed Ashdown Project, Sylvania Molybdenum Mine (herein after called the Sylvania Mine), if approved would consist of continued mining and processing, beyond the 1000 ton bulk sample notice level, of about 100 tons of ore per day year round an estimated five years. The project would involve underground mining methods.

The Sylvania Mine also involves construction of a flotation mill to process the ore. A 100 ton per day (tpd) flotation mill has been constructed two miles west of the Sylvania Mine on private property, in Bog Hot Valley (Figure 2). The mill was initially built to “optimize” the metallurgical recovery of molybdenite (MoS_2). This will be accomplished by processing the 1000 ton bulk test sample mined from the Sylvania vein. During full-scale mining, the mill will process the MoS_2 ore producing a concentrate to be shipped out of state for final processing. The Nevada Division of Environmental Protection-Bureau of Mining Regulation and Reclamation (NDEP-BMRR) has approved the Water Pollution Control Permit and the Reclamation Plan for the mill.



Ashdown Project
Humboldt County, NV

Figure 1:
**ASHDOWN PROJECT
SYLVIA MINE**



SURFACE DISTURBANCE		LAND		Infrastructure	
	pre-1981 Disturbance & Access Roads		Project Boundary		Rapid Infiltration Basin
	post-1981 Reclaimed Drill Roads		Unpatented Claim Boundary		Hydrologic Study Test Holes
	post-1981 Drill Roads to Reclaim		Fee Land		D-1 drilled into bedrock
	Area of Proposed Disturbance for Sylvia Mine Plan of Operations		Sylvia Mine Existing Decline & Development		P-1 50' permeability test hole
	Reclamation Test Plots (road reclamation completed in 2004 is located off the NE corner of this map)		Ashdown Gold Mine Adits		Boundary of Archaeological Survey
			Dewatering Pipeline		

Uplands topo digitized from 1981 1"=500' maps
C.I. = 50'

Range front topo digitized from USGS Vicksburg Canyon 7.5' Quad
C.I. = 40' (w/ supplemental 10' contours)

Scale: (feet)
0' 500' 1000'

File: SYLVEA_Fig2_Site.dwg
Xref:
Drawn by: efl 02/07/05
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Ashdown Project
Humboldt County, Nv.

Figure 2:
**SYLVIA MINE
SITE MAP**

Golden Phoenix Minerals, Inc.

Mining activity was reported in the Ashdown-Vicksburg Canyon area in the 1860's. The Ashdown Project is named for the Ashdown Gold Mine located just north and adjacent to the Sylvia Mine. The Ashdown Mine produced gold from several levels, primarily during the early 1900's, with sporadic attempts to revive the underground operations continuing into the 1970's. Gold was primarily recovered in several small amalgamation mills located at the portals. In 1980, American Copper and Nickel (ACNC) leased the property and began exploring for molybdenum. ACNC then drove a decline approximately 2,000 feet to access the Sylvia quartz-molybdenite vein and bulk sampled the vein along 400 feet of strike length with an 8 ft. x 8 ft. drift. With depressed molybdenum prices, efforts were redirected to gold exploration. Win-Eldrich Mines Ltd (WEX) purchased the property in 1987, and a series of joint venture partners continued to explore for gold. In 2004, GPMI entered into an agreement with WEX to explore and develop the property primarily for gold. However, the recent increase in commodity prices including molybdenum has made the Sylvia vein an economically viable deposit.

Molybdenite (MoS_2) is the primary ore of molybdenum metal, which is used for:

- alloying agent which contributes to the hardenability of tempered steels
- as electrodes for electrically heated glass furnaces
- a valuable catalyst in petroleum refining
- a filament material in electrical applications
- molybdenum disulphide also is a very good lubricant, at high temperatures where normal oils decompose

Almost all ultra-high strength steels contain molybdenum. Molybdenum is also used in the manufacturing of missile and aircraft parts and in nuclear energy applications. It is an essential trace element in plant nutrition (Oxford Press, 2002).

1.2 PURPOSE AND NEED FOR PROPOSED ACTION

GPMI's purpose and need for the Proposed Action is to mine molybdenite from the Sylvia Mine. GPMI's objective is to recover as much of the mineral deposit as economically feasible to provide a maximum rate of return to its investors. GPMI's goal is to operate and reclaim the project area in an efficient, environmentally responsible, and safe manner. GPMI would also conduct exploration drilling under the Proposed Action. The purpose of the exploration drilling is to extend the mine life beyond the current mineable reserves.

The BLM's purpose and need for this environmental analysis is to comply with the National Environmental Policy Act (NEPA), and to evaluate the potential environmental consequences of the actions proposed. Additionally, a subsidiary purpose of the analysis is to determine if there are reasonable mitigation measures that can be implemented to protect the natural environment from any potential impacts that may be identified. The EA will serve as a decision-making instrument to assist the BLM in its determination to approve, modify or reject the Proposed Action. BLM's need for the action is to respond to the claimant's Plan of Operations as required by 43 CFR 3809.411. This environmental assessment (EA) is prepared in conformance with

NEPA and the Council of Environmental Quality (CEQ) regulations implementing NEPA (BLM, 1998).

1.3 CONFORMANCE WITH LAND USE PLAN

The Proposed Action is in conformance with the BLM Winnemucca District Paradise-Denio Management Framework Plan (MFP) (BLM, 1982), specifically M1.2 and M1.3. The MFP decision for minerals states: “Make no land use decisions that would interfere with the potential development of economically important minerals occurring on public lands.” Although access to private lands across public lands was not specifically discussed in the MFP, the action would be within the intent of the objectives of the land use plan. Section III 3-1 states in part: “Insure legal access, where consistent with the management plans.”

1.4 OTHER APPLICABLE RULES AND REGULATIONS

Many laws, regulations, policies, and plans direct the BLM to support and facilitate mineral extraction while protecting surface resources to the extent possible. The 1872 Mining Law states that all valuable mineral deposits in lands belonging to the United States are to be free and open to exploration. The Mining and Minerals Policy Act of 1970 directs the Federal Government to foster and encourage private enterprises in the orderly and economic development of domestic mineral resources

The Federal Land Policy and Management Act of 1976 (FLPMA) states that public lands will be managed recognizing the need for domestic sources of minerals. The BLM Surface Management Regulations (43 CFR 3809) were developed to prevent unnecessary or undue degradation of public lands related to mining, as directed by FLPMA. Other laws relevant to this project include (but are not limited to) the National Environmental Policy Act (NEPA), the Clean Water Act, and the Endangered Species Act.

A number of federal, state and local permits and authorizations would be required for construction and operation of the Ashdown Project, including the associated mineral processing facility located on nearby privately-owned land. These are shown in Appendix 1 (List of Permits and Approvals). Both the State of Nevada Water Pollution Control Permit and the Reclamation Permit have been issued for the mill.

A mining operation must be conducted consistent with all applicable federal, state, and local environmental, permitting, operational and safety requirements. The Proposed Action that is being analyzed in this EA must also be in conformance and consistent with applicable federal, state, and local laws, regulations, and plans.

1.5 ISSUES

BLM specialists met in a scoping meeting on June 23, 2005 in Winnemucca and identified issues and critical elements of the environment for the Proposed Action. These are addressed in the EA.

The following issues were identified as important to the public and state and federal agencies:

- Cultural Resources: Several landscape and constructed features involving historic mining activity in the project area may be affected by the mine project configuration. These potential impacts will be assessed, as well as appropriate mitigation.
- Water quality: Mine dewatering must not degrade waters of the state. Likewise, cumulative impacts of processing minerals at the Morris Mill fee property must be evaluated and mitigated. Tailings pond containment and stormwater management will be key design factors.

The BLM's public announcement of the Proposed Project Plan of Operations (P of O) resulted in the identification of one additional concern, impacts to potential sage grouse habitat. This public concern is also addressed in the EA.

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

2.1.1 Location

The Sylvia Mine portal is located in a small, unnamed canyon in the Vicksburg Mining District on the west side of the Pine Forest Range (Figures 1 & 2). The legal description for the unpatented lode claims is Section 13, T45N, R28E, and Section 14, T45N, R29E, Mount Diablo Meridian. The mill site will be located two miles west-southwest of the mine on private land leased from Claude Edward Morris. The legal description of the site is the E ½, NW ¼, NW ¼, of Section 23, T45N, R28E (Figure 2).

2.1.2 General Project Overview

The Ashdown Project proposed by GPMI consists of continued development of the underground molybdenum mine originally established by ACNC in 1980. The operation would mine about 100 tons per day, using a modified cut and fill mining method. The mine facilities and surface disturbance would include: a miner's dry, sandfill plant, silo, pressure wash station, generator, temporary powder magazines, fuel storage tanks, portable crusher, air compressor, vent shaft, gravel screening plant, dewatering line, flotation processing plant, laboratory, tailings pond, storage containers, and exploration drill roads (Figures 3 and 4).

GPMI activities would also use the pre-existing portal, waste dump bunkhouse, power line, power line right-of-way, water well, water storage tank, shop building, two storage buildings, access roads and office trailer that have been in place since 1980. About 18 acres of pre-regulation existing mining disturbance and 2.33 acres of new disturbance would be caused by the mining operation on public land (Table 1). Pre-regulation disturbance is defined as mining activities which impacted federal lands prior to issuance of 43 CFR 3809, which states that "all entrance to public lands to search for minerals shall be conducted so as to minimize adverse environmental impacts on the surface resources."

The Morris Mill would be utilized to process the ore by a flotation process. About 9 acres of private land would be required for the zero-discharge mill facilities. In total, 30.31 acres of land (BLM and private) would be disturbed by the mining and processing facilities (Table 1). MoS₂ concentrate would be produced and shipped offsite for final treatment. The facility has been permitted by the Nevada Division of Environmental Protection, Bureau of Mining Regulation and Reclamation (NDEP-BMRR).

Ultimately, about 120,000 tons of high-grade molybdenite ore and up to 40,000 tons of non-acid generating waste rock will be mined by conventional, rubber-tired underground methods. The mine is expected to produce about 700 tons of ore per week. The waste rock will be placed on top of a pre-existing waste rock storage site located between 250 to 450 feet northwest of the

Sylvania Mine portal. Mine life is projected to be five years, based on GPMI's current minable reserve estimate.

**Table 1. Total Disturbance Acreages
 for the Proposed Sylvania Molybdenite Mine & Milling Operation**

BLM ADMINISTERED LAND DISTURBANCE	PREVIOUSLY DISTURBED ACRES ^{1/}	NEW DISTURBANCE
Existing Access Road from County Road to Mine Site	5.95	0.00
Existing Access Road to Secondary Underground Escape	3.03	0.00
Existing Waste Storage Site/Laydown Area/Shop/Portal	3.46	0.00
Proposed Land Application Area	0.00	2.00
Existing Access Road to Mill Site	1.21	0.00
Existing Exploration Roads (under NOI)	6.16	0.00
Reclaimed Exploration Roads (under NOI) per 06/28/05 inspection	(-1.55)	0.00
Proposed Exploration Road	0.60	0.00
Proposed Widening of County Road to Mine Site	0.09	0.09
Proposed Widening of the County Road to Mill Site	0.00	0.24
Proposed Widening of Access to Secondary Underground Escape	0.00	0.00
Proposed Rapid Infiltration Basin	0.00	2.00
Total BLM Land Affected	18.95	2.33
RELATED PRIVATE LAND DISTURBANCE	PREVIOUSLY DISTURBED ACRES^{1/}	NEW DISTURBANCE
Crusher/Conveyor	0.00	0.06
Mill Building	0.00	0.05
Tailings Impoundment (includes sandfill source)	0.00	3.53
General Plant Site, Interior Roads, Parking	0.00	4.58
Crusher Stockpile	0.00	0.08
Diversion Ditches	0.00	0.73
Total Fee Land Affected	0.00	9.03

^{1/} Pre 43CFR 3809 Disturbance (Prior to 1981)

Total BLM and Fee Land Disturbed = 30.31 Acres

2.1.3 Detailed Project Description

2.1.3.1 *Access Roads*

The Ashdown Project is accessed from Winnemucca by traveling north on U.S. 95 for 31 miles to Highway 140, then northwest for 67 miles to Denio Junction, and continuing west on Highway 140 approximately 9 miles to unmarked gravel county road 204 (Figure 1). The project is about four miles to the southeast of the intersection. The entrance to the canyon is 1.3 miles east of the county road. The Sylvania Mine portal is approximately 0.2 miles up the canyon, from the range front.

The Morris Mill is located one-half mile west of the county road (Figures 1 & 2). The existing 1.5 miles of mine access road and the 0.5 miles of access road to the Morris property will be improved by minimal widening and by adding up to four inches of gravel or crushed rock to the surface, grading and crowning the road, and refurbishing erosion control features. Rock for the road surface would consist of either crushed quartz diorite from the Sylvania Mine, granite gravel extracted from the on-site BLM gravel pit (Figure 2), or gravel purchased from an outside supplier.

The access roads up to the canyon and into the mill site are located on low ridges requiring minimal erosion control. Approximately 250 feet of road will be widened through the canyon to the mine, resulting in approximately 0.09 acres of new disturbance. One culvert will be installed across the access road in the canyon to carry water from a small drainage on the north side of the road to the natural drainage during run-off periods. The 0.5 mile access road to the mill may also be widened from 20-24 feet, resulting in 0.24 acres of new disturbance. This amounts to about 0.33 acres of new disturbance over the entire BLM-administered corridor (Table 1). Road construction and maintenance will follow the BLM Roads Manual 9113.

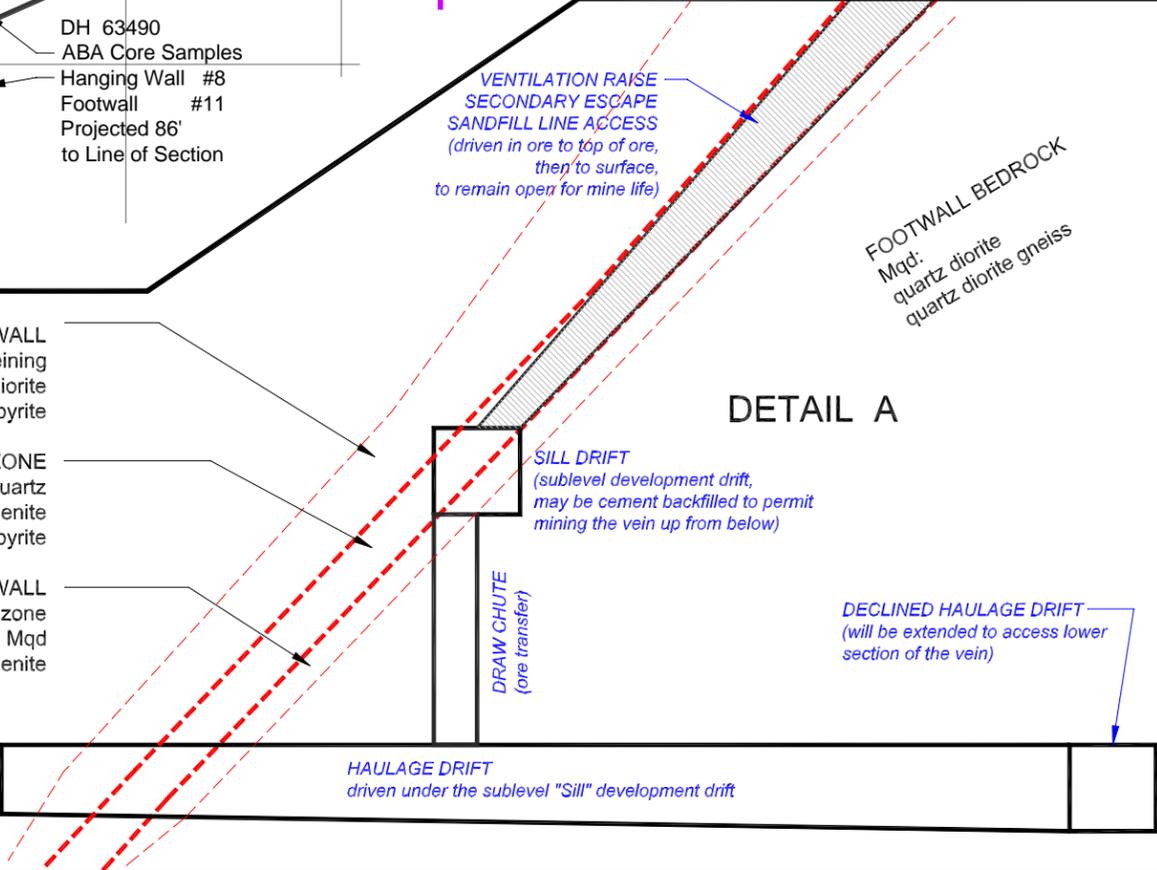
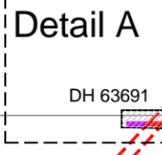
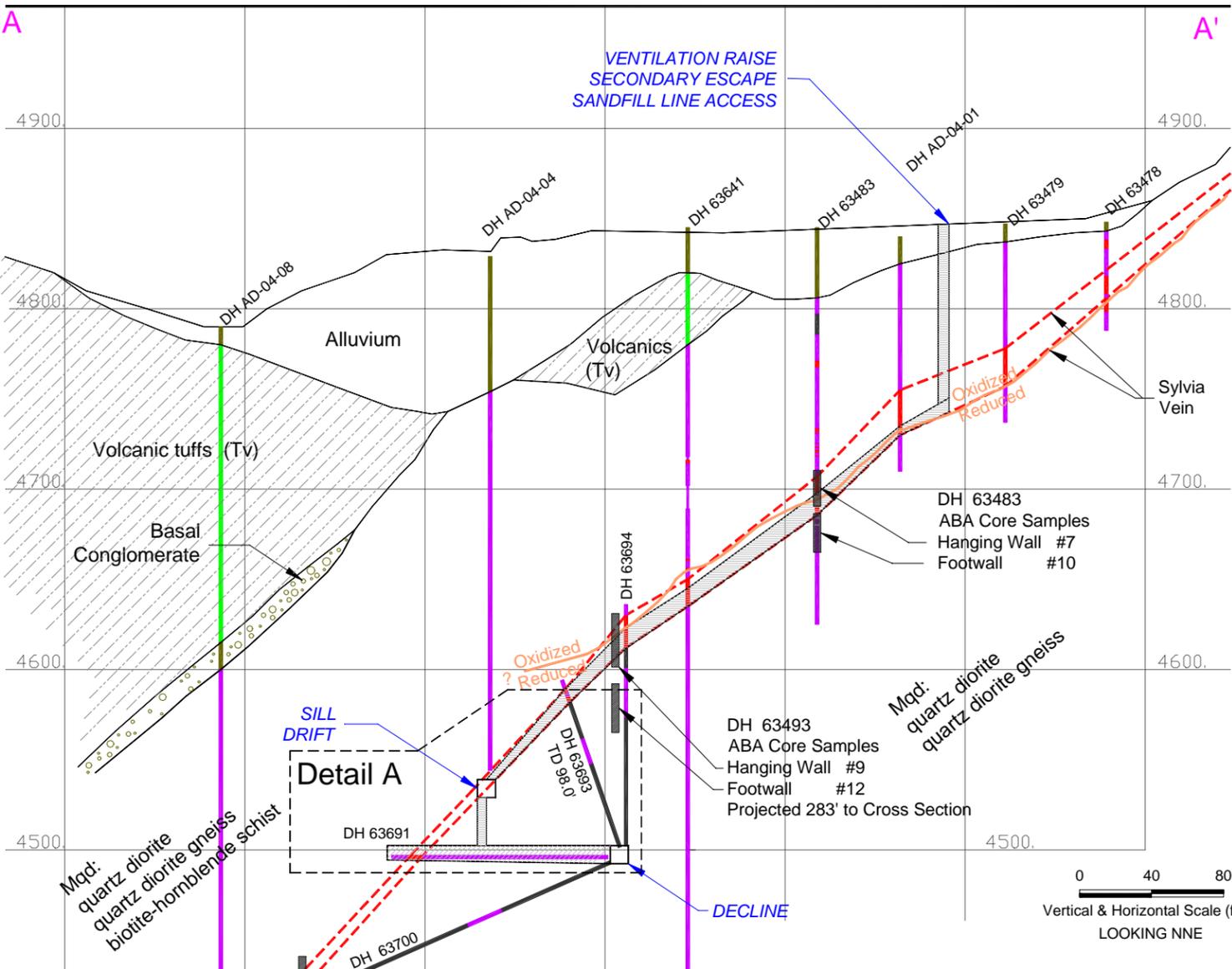
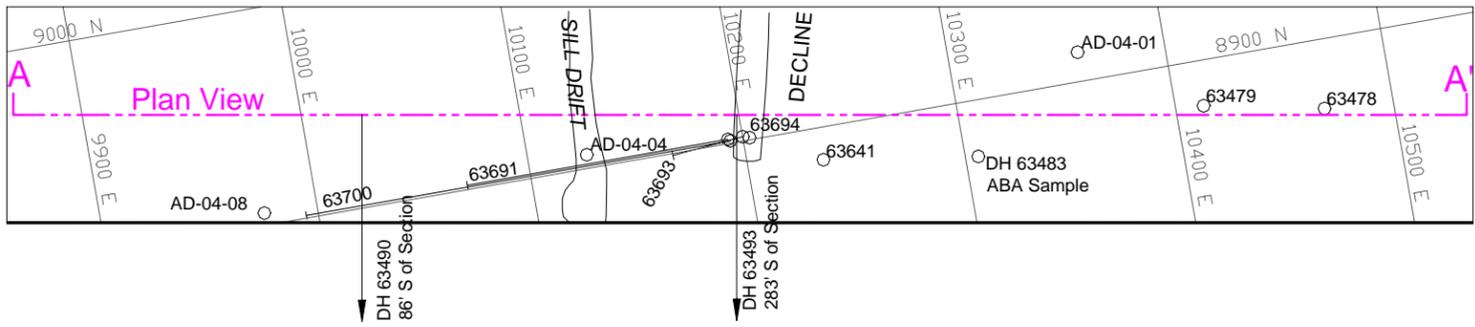
Approximately 1,700 feet of pre-regulation roads will be used to access the ventilation/secondary escape/sandfill raise southeast of the portal. Roadwork will consist of reblading the existing sloughed material to provide room for safety berms and diversion ditches. Diversion ditches will be constructed along most of the road, directing surface water through four culverts. A stock fence will be constructed around the immediate area of the ventilation raise.

To provide for public safety, GPMI also proposes to control access to the Ashdown Project mining operation in the immediate area of the mine. This will be accomplished by maintaining a gate across the access road near the mouth of the unnamed canyon and a gate above the mine on a pre-1981 road (Figures 3 & 4). Public access around the mine site will remain available through Vicksburg Canyon.

2.1.3.2 Underground Mining

At full production, the Sylvania Mine would mine about 100 to 150 tons per day with a mine "call" of seven hundred tons per week, equal to the mill capacity. The ore would be extracted by underground mining techniques. A summary description follows.

Construction of the mine on BLM land would take about two months to complete and consist primarily of driving 800 feet of new decline, which will bypass a section of caved ground, and intersect the old ACNC workings deeper in the mine. The quartz-molybdenite vein would be accessed through the decline. A new, short, haulage drift would be driven from the decline, under the Sill drift and connected to the Sill drift via a vertical ore transfer raise (Figure 5). The Sill drift would then be used as a sublevel development drift. Development of the ore will begin at the Sill drift by driving a multi-compartment raise, up along the dip of the vein, to the top of the ore. When the top of the ore is reached, the raise will be driven vertically to the surface to provide ventilation and a secondary escapeway. This raise will also provide access for a sandfill line.



EXPLANATION

- Overburden/ Alluvium
- Tertiary Volcanic Tuff & Tuffaceous Sediment
- Mqd: Quartz Diorite
- Biotite-Hornblende-Quartz Diorite Gneiss
- Metasediments(?):
Biotite-Hornblende-Quartz Diorite Gneiss
Biotite-Hornblende Schist
- Quartz Vein

Ashdown Project
Humboldt County, NV

Figure 5:
**SYLVIA MINE
CROSS SECTION**

Golden Phoenix Minerals, Inc.

File:
SylVEA_Fig05_XS13.dwg
Xrefs:

Drawn by: elf 06/15/05
Revisions: elf 10/03/05
elf 02/25/06

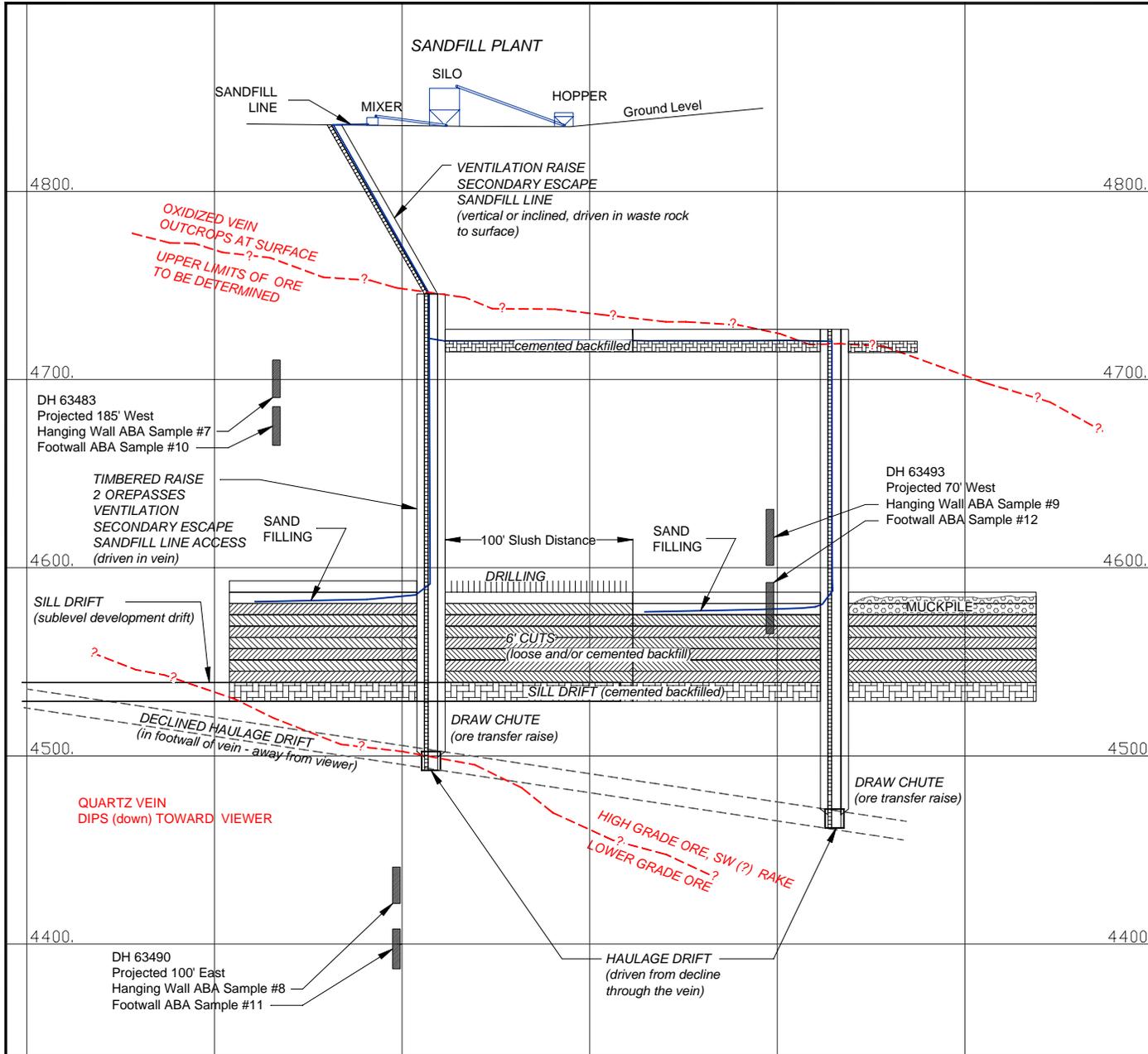
Once ventilation and a secondary escapeway are established, sublevel development drifts will be driven horizontally from the raise to block out the ore (Figure 6). The vein would be extracted from the bottom up. From the sublevel development drifts, miners would breast down the ore vein in the back for 100 feet on each side of the raise, in phases. The stopes will generally be five to six feet wide. Widths up to fifteen feet can be expected where the ore thickens. Broken ore would be slushed horizontally to the ore passes on each side of the raise, loaded into ore trucks, and hauled up the decline to the surface. The stope would then be partially backfilled, leaving room at the top of the backfill to reenter the stope and breast down another six foot round. This will aid in ground control and reduce dilution from the hanging wall. Any waste or low-grade material caving in from the hanging wall would be removed by slushing to the ore passes. The cave material cannot be segregated from the ore in the mining process and as a result, it would be mixed with the ore during transport and processed in the mill.

Depending on ground conditions, more than one level could be breasted down before backfilling. Cemented backfill may be used in the bottom of the stopes. This would allow any ore found below the stopes to be mined up to the cemented backfill from a lower level. Upper layers of sandfill may only be partially cemented to keep the slusher bucket from digging out sand with the ore. Rock bolting, wire mesh, stulls, and timber sets would also be used to maintain the integrity of the underground workings.

Backfill would consist of sand material from the Morris Mill, sand and gravel from the BLM gravel pit, or crushed (non-acid generating) quartz diorite, or a combination of any of the three and cement added as necessary. Backfilling would stabilize the underground workings providing for safe mining access and maximum ore recovery. It would also prevent surface subsidence, and buffer groundwater pH. If the entire stope were backfilled, a maximum of 81,000 tons of sand and fine gravel or 87,000 tons of crushed quartz diorite would be necessary. However, the exact amount of backfill that will be required is not known at this time. Therefore, the greater tonnage will be evaluated.

A list of underground mining equipment is provided in Table 2.

TABLE 2. UNDERGROUND MINING EQUIPMENT	
FIXED	MOBILE
2 – 35hp ventilation fans	1- portable crusher
4 – 10hp ventilation fans	1 – 10-ton Elmac truck
2 – powder magazines	2 – 3.5-yard Elmac LHD
Drill water lines	1 – 1-yard SC1b mucker
Mine dewatering lines	Jacklegs
Compressed air lines	Stoppers
Timber	Slushers
Rock bolts	Tuggers
Steel sets	
Wire mesh	



4800.

4700.

4600.

4500.

4400.

Production:
 100' VEIN, 5' WIDE, 6' ROUND = 3,000 CU FT
 @ 12.5 CU FT/ TON = 240 TONS/ CUT

SAND FILL:
 100' VEIN, 5' WIDE, 6' ROUND
 = 3,000 CU FT
 = 111.1 CU YDS/ CUT
 = 158 TONS SAND @ 19 CU FT/ TON

Scale: 0 40 80 feet
 Vertical & Horizontal Scale (feet)
 LOOKING ESE

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 Xrefs:
 Drawn by: elf 06/20/05
 Revisions: elf 10/03/05
 elf 03/03/06

Ashdown Project
Humboldt County, NV

Figure 6:
SYLVIA MINE
SCHEMATIC LONG SECTION

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2.1.3.3 *Water Use and Management*

Table 3 lists Sylvia Mine estimated operational water use requirements. The underground mine produces between 5 and 25 gallons per minute (Falk and Colwell, 2005), varying with seasonal precipitation. For mine safety reasons, the underground workings are currently being dewatered under temporary permits and approvals granted by NDEP-BMRR and the BLM. This program will ensure safe mining conditions once full-scale development is initiated. Excess water encountered during mining would be collected and pumped to a 60,000-gallon storage tank on the surface after treatment by an oil separator. Clean water would be used for drill water, dust control, sand fill, and fire suppression.

GPMI would permit and construct two rapid infiltration basins (RIB's) at the mine site. A rapid infiltration basin is an area that has been designed and permitted to receive mine drainage, which percolates into the substrata as a means of treatment and/or disposal. The NDEP-BMRR administers the ground water protection program in Nevada. A preliminary design has been developed by GPMI using infiltration rates measured by York (1990). Two RIB's would be located about one-half mile west of the portal where the existing temporary system has successfully operated. The combined area of disturbance for the two RIB's would be approximately two acres.

Construction of the RIB's would involve excavation of the upper foot of topsoil over an area of about one acre. This topsoil would be stockpiled for final reclamation, upgradient from each of the two sites. Two feet wide trenches dug an additional two feet in depth and spaced the optimum distance feet apart, would then be excavated. Spacing would be based on soils infiltration test results to be approved by NDEP-BMRR. This excavated waste material would be placed in the waste rock storage site. Perforated (6 inch) plastic piping would be placed in the trenches; the trenches would then be back-filled with clean gravel hauled from off-site.

In the event of unexpected heavy precipitation resulting in higher mine recharge, water from the mine would be piped to one of two RIB's. The infiltration basins would be fed by gravity and could be rotated for servicing and or "resting". Clean mine drainage would infiltrate into the sub-strata, or flow to the Morris Mill via the existing access road R/W to be used as makeup water. The final siting of the mine site RIB facility would be based on infiltration and permeability test results and related design criteria and hydraulic loading rates. RIB use would be documented by GPMI in the "Operations and Maintenance Manual", to show estimated average flows to the infiltration sites and wet/dry cycling.

One upgradient and two downgradient monitoring wells would be installed at each of the RIB to document the degree of treatment. These wells would be installed according to State of Nevada requirements, and drilled by a water well driller licensed in the state. This would include appropriate siting of the upgradient wells not more than 250 feet above the disposal area, and not more than 50 feet from the outer edge of the land application systems. The permanent system would be permitted by NDEP-BMRR and the BLM, and a waiver would be obtained from the State Division of Water Resources. Reclamation requirements are described later in this section.

Table 3. Sylvia Mine Estimated Water Use Requirements

Facility	Water Estimated/Usage		Comments
	gallons per day (approx.)	gallons per minute (approx.)	
Underground Drilling	Reuse	Reuse	Recycled through mine pumping system
Slurry to Backfill 100 ton Stope	1000	1	90% recycled through mine pumping system
Water Roads	8,000	6	Used as necessary for dust suppression
10% Contingency	1000	1	Estimated by GPMI
TOTAL	10,000	8	Approximate water usage

Note: Most of the water used to slurry backfill into the stopes will drain back to the mine sumps and be recycled. Some water will be retained in the sandfill by hydration of the cement when it is applied. The water used for underground drilling will recycle to the mine sumps.

GPMI would use ground water from a new well at the mill site when the mine water supply is insufficient for mill operations. An agreement with Claude Edward Morris has been made for a temporary transfer of part of the right to be used in the milling process, as part of the land lease at the site. Mr. Morris' water right is Water Permit #31347.

2.1.3.4 Surface Facilities for Mine

Surface activities related to the underground mining would re-disturb about 3.46 acres of pre-regulation disturbance in the immediate area of the portal (mine entrance). These activities include additions to the waste rock storage site, temporary ore stockpile, existing shop and storage building, miner's dry, area for storage of ground support materials, diesel generator, a lined fuel storage area, and temporary powder magazines. Once adequate underground development has occurred, the powder magazines will be stored underground; caps and explosives will be separated according to MSHA regulations.

A list of surface equipment is provided in Table 4 . Figures 3 and 4 show the locations of fixed buildings and support infrastructure for the mining operation. Existing disturbance for the access road to the mine surface facilities for the vent/secondary escape raise and sandfill plant total about 3.03 acres.

TABLE 4. SURFACE EQUIPMENT & INFRASTRUCTURE NEEDS	
<p>FIXED</p> <p>40' x 40' shop building (existing) 10' x 50' trailer for miners dry 12' x 84' office trailer (existing) Storage building (existing bunkhouse) 20' x 20' storage building (existing) 16' diameter x 20' silo 600 cfm compressor Power station Wash pad with sump Diesel fuel tanks Gas storage tank Pressure washer Water well 25 Kw generator 60,000 gal water tank (existing) Cap and powder magazine (temporary)</p>	<p>MOBILE</p> <p>1 – 10 wheel dump truck (10-15 ton) 1 – 14G Cat blade (grader) 1 – 4000 gallon water truck 1 – 5 ton hopper truck (for bulk cement) 1 – 250 cfm compressor 1 – 25 kw generator 1 – 1-ton service truck 3 – pickup trucks</p>

2.1.3.5 Waste Rock Storage

Up to 40,000 tons of underground waste rock (non-ore) would be removed to gain access to the mineralized zone(s). The existing waste rock storage site “footprint” would accommodate all of this tonnage.

About 4,000 tons of this waste rock are expected to be Tertiary volcanic tuffs or tuffaceous sediments (Tv). The soil-like material is conducive to revegetation. The material would be segregated and stockpiled at the north end of the existing waste rock storage site to be used for final reclamation. It is non-acid generating. GPMI intends to implement a reclamation test plot program at the start of operation. The test plots would be designed to evaluate and monitor site-specific growth media additives and revegetation needs for the material.

About 36,000 tons of quartz diorite would be hauled to the surface and stored permanently in the waste rock storage facility, crushed for road rock, or used as backfill. All of the quartz diorite mined from the footwall of the Sylvania vein is expected to be fresh and acid neutralizing with calcite occurring in veinlets and as fine disseminated crystals. Part of the new decline would be driven through weathered quartz diorite in the hanging wall of the vein. This material is also expected to be acid neutralizing. An estimated 15 to 20 feet (120 to 160 tons) of new decline would be driven through massively silicified quartz diorite immediately above the high-grade vein. This potentially acid generating material is expected to be low-grade ore, and would be processed at the mill with the tailings stored in the lined tailings pond.

2.1.3.6 Stockpiling Ore

A small stockpile or “working inventory” of ore (about 700 tons) would be placed on the surface near the mine entrance (Figure 4). The stockpile would serve as a transfer point to take ore from underground trucks, and load it into a surface haul truck for transport to the mill. Surface drainage will be directed around the stockpile area in a small diversion channel. A second smaller “mill feed” stockpile (approximately 500 tons) would be located on privately owned land at the Morris Mill.

2.1.3.7 Ore Hauling and Material Transport

Ore would be hauled offsite to the Morris Mill facility located on private land, using a 15-ton haul truck. The right-of-way to the Morris Mill is authorized by the Federal Land Policy Management Act (FLPMA). The road is authorized as R/W N-89568. The existing main access road would be upgraded to a 24-ft. wide gravel surface for a distance of two miles to the processing facility. No major improvements are necessary to the existing road alignment. The total new land disturbance is about 0.09 acres required to widen the road through the mouth of the canyon. One new culvert would be required in the canyon. About seven haul trips per day would occur to the Morris Mill. The main access/haul road would be watered as necessary to mitigate dust.

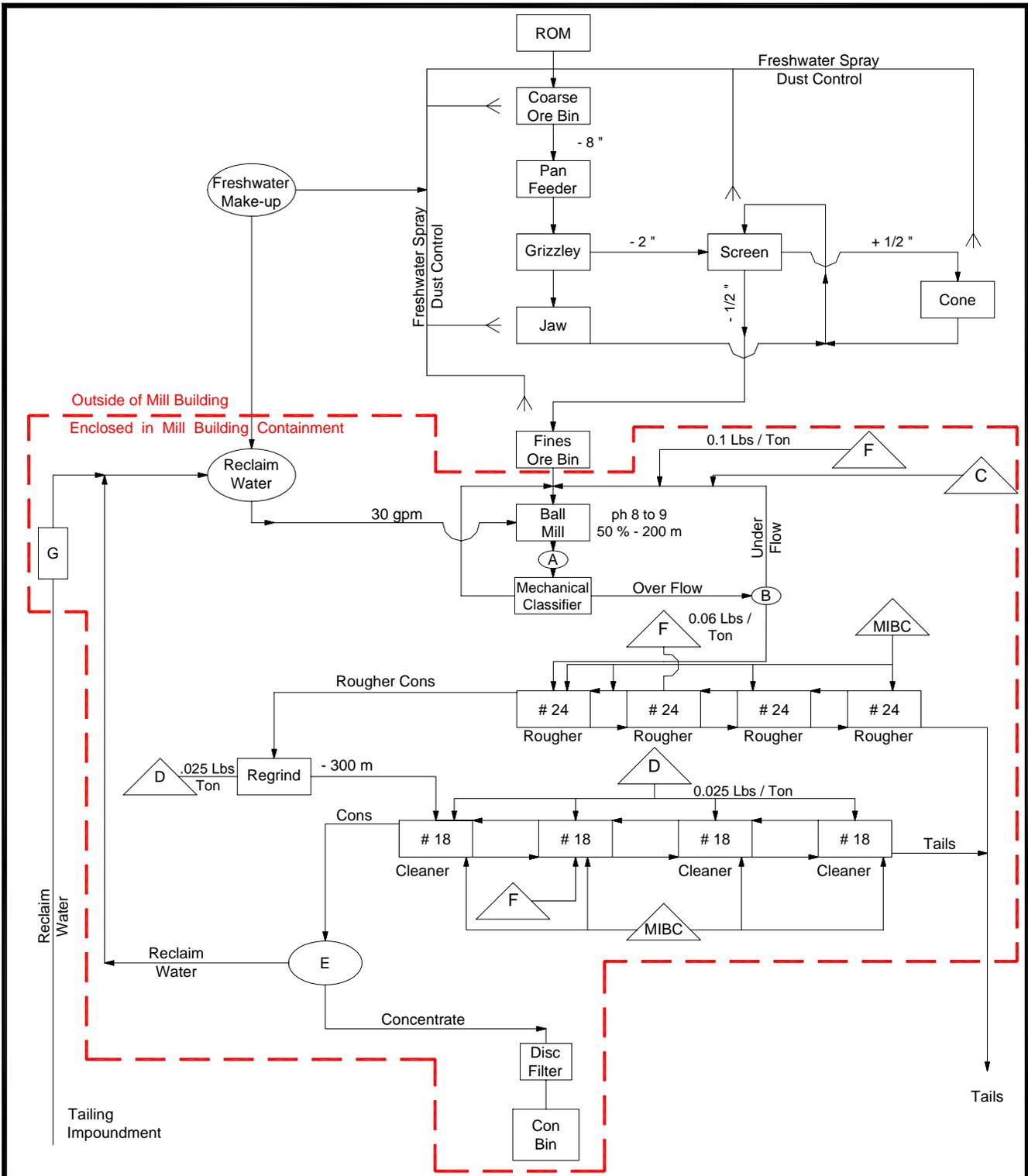
2.1.3.8 Sandfill Operation

The Proposed Action would require that sand and gravel be excavated or mined from one of two sites at the project, either from the Morris Mill where material was excavated to construct the tailings pond, or from the nearby BLM gravel pit. As described earlier, this material would be used to stabilize the underground workings. In this situation, the sand is used instead of waste for support in the cut-and-fill slopes. Sand is brought into the stope from the surface as a water slurry in a pipeline. The sand fills all voids and forms a tight compact support or working platform after the water has drained away.

2.1.3.9 Proposed Milling Operation (Private Land)

The ore will be processed at the Morris flotation mill located two miles west of the Sylvia Mine on private land (Figure 2). The mill is designed to process 100 tons of ore per day. This capacity is equal to the planned production from the Sylvia Mine.

The flotation process used to recover the MoS_2 as a concentrate is shown in Figure 7. The facility is a “closed system” with no discharge to waters of the State of Nevada. Previous bench-scale testing indicates that at least 86 percent of the molybdenite will be recovered in the flotation concentrate. The mill process would use about 48,000 gallons of water per day (gpd) at startup, and approximately 16,000 gpd during operations. The water supply would be the existing Morris domestic well.



EXPLANATION

- A - Au Classifier
- B - Hydro-Cyclone
- C - Ca(OH)₂
- D - NaCN
- E - Thickener
- F - Fuel Oil
- G - Carbon Columns
- M - MIBC alcohol

—< Dust Control Spray

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 Drawn by: elf 09/28/05
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 Morris Mill WPCP Figure 6
 Revisions:

Ashdown Project
 Humboldt County, NV

Figure 7:
**MORRIS MILL
 100 TPD FLOTATION
 FLOW SHEET**

Golden Phoenix Minerals, Inc.



The entire chemical treatment process is controlled. Tailings are discharged into a synthetically lined, totally contained pond as part of a state-approved “fluid management system”. Residual chemicals and fluids left in the concentrate would be retained in the concentrate bin, or sent back to the reclaim system. The facility will be a zero-discharge system. The internal containment system is designed to hold all the processing fluid, plus 10 percent. The “outside” containment system tailings pond is designed to contain the processed tailings, plus the 25-year, 24-hour storm event, plus one foot of freeboard.

The mill facility and tailings pond has been constructed at the Morris property. About 9.03 total acres has been disturbed (Table 1). As previously discussed, the mill has received both a Water Pollution Control Permit (WPCP) and Reclamation Permit from the State of Nevada NDEP-BMRR. This was granted under the Water Pollution Control Program’s “small-scale processing facility” definition. This category limits the operation to processing less than 36,500 tons per year, and no more than 120,000 tons of ore for the life of the project at any one permitted site. Ore would be hauled from the mine to the mill in 15-ton haul trucks.

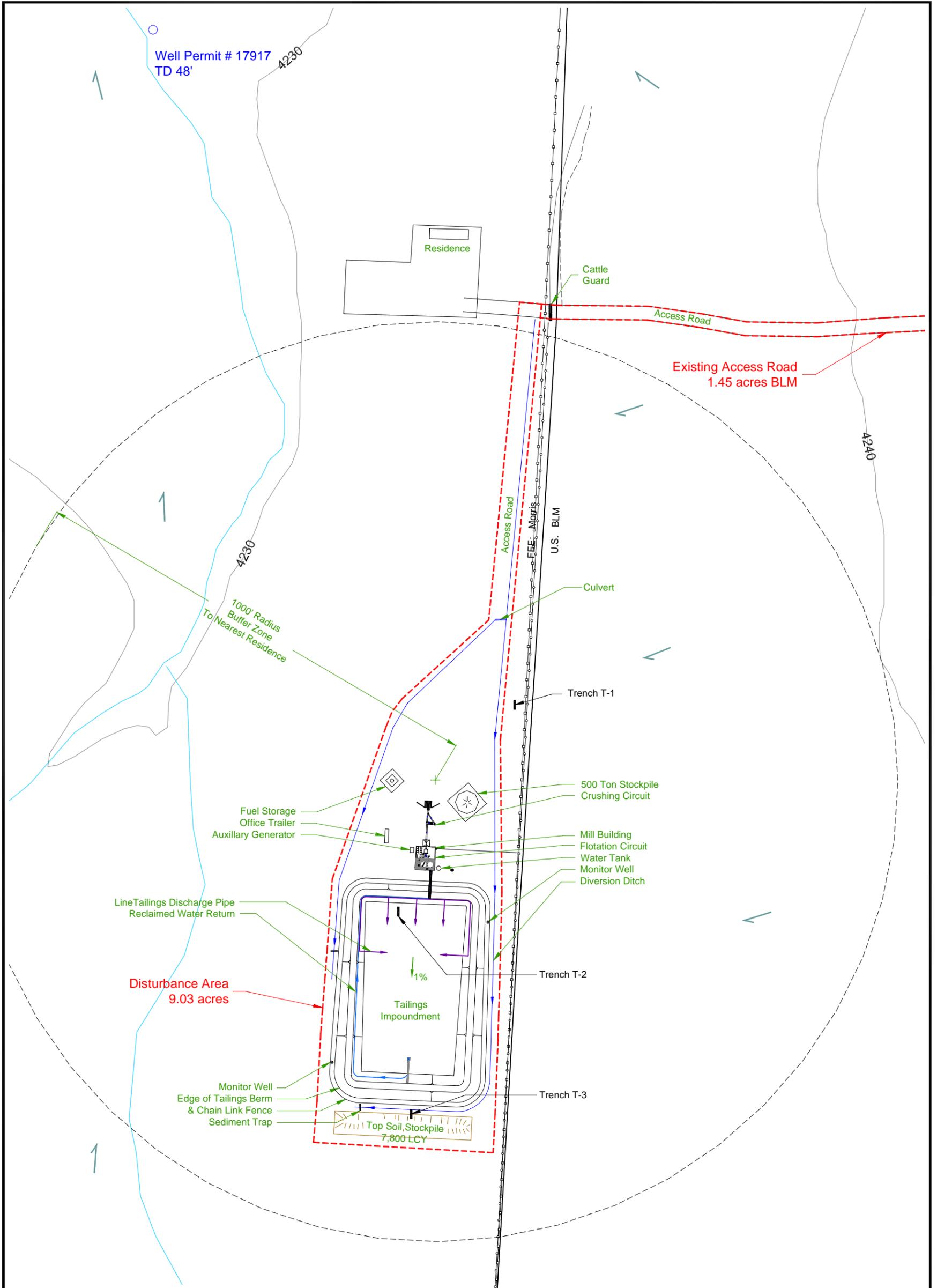
The mill administration building/office trailer would include a storage room, safety materials and washroom, wet lab, and concentrate weighing room (Figure 8). All laboratory wastes would be loaded into approved containers and disposed of at a landfill approved for handling special wastes. A chemical toilet would be located at the site during construction. A 1,500 gallon septic tank system would ultimately serve the facility. Bottled drinking water would also be provided.

Tailings would be transported to the pond via a pipeline contained in an elevated steel launder. Process water would be collected in the pond sump, and pumped back to the mill for reuse. The pond is fully lined with 60-mil high-density polyethylene (HDPE) liner on a prepared sub-base liner. Wells to monitor the ground water have been completed. This will insure the integrity of the closed system, and the protection of local ground water resources. The area of disturbance for the pond will be about 3.53 acres. It will be enclosed with “deer-proof” fencing, and could be netted if necessary.

The 100 tons per week of concentrate would be produced at the mill. This “concentrate” is the valuable material produced from the ore by a separating and concentrating process called flotation. The concentrate would be loaded into “Supersacks”, then into semitrailers, and shipped offsite by the buyer for further processing. Approximately five trips per week would be transported. The expected route will be from the mine site to Interstate 80 through Winnemucca.

GPMI would use ground water from a new well adjacent to the mill. An agreement with Claude Edward Morris has been made for temporary transfer of part of the right to be used in the milling process as part of the land lease. The Morris water right is Water Permit # 31347.

An ore stockpile (approximately 500 tons) would be located on privately owned land at the Morris Mill. This will insure that the routine mining and milling processes are not interrupted, and that maximum production and profitability can be achieved.



Explanation

- Area of Surface Disturbance
- ▶ Diversion Ditch
- Power Line
- Fence Line
- ⊗ Monitor Well (proposed)
- Water Well (proposed)
- 10' Contours from USGS 7.5' Vicksburg Canyon Topo

← Assumed Hydrologic Flow Direction

| Trench T-1: Geotechnical Test Trench (sampled 04/28/05 for compaction test and grain size distribution)

0 100 200
Scale (feet)



Drawn by: elf 04/22/05
Revisions: elf 07/18/05

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copy of
Morris Mill Reclamation Plan
& WPCP Plan
Fig3_EM_Facilities.dwg

Ashdown Project
Humboldt County, NV

Figure 8:

MILL SITE

Golden Phoenix Minerals, Inc.



Fuel storage at the site would involve installation of a 10,000-gallon diesel storage tank. The tank would be located inside a bermed, HDPE-lined containment area. The containment area would be sized to contain an accidental spill of all the contents of the tank, plus the design storm event.

2.1.3.10 *Power Supply & Fuel*

Harney Electric Cooperative (Burns, Oregon) would provide electrical power to the mine. BLM R/W N-35558 currently accommodates a 24.9 KV electric distribution line to the mine. A three-phase 750 KVA system would be reestablished by GPMI under the requirements of this R/W approval at the mine.

The Morris Ranch mill site is already served electric service by Harney Electric (FLPM R/W N-80759). The service would be expanded to provide for the milling operation. The power R/W for the ranch and mill is addressed in this environmental assessment document.

Two thousand gallons of fuel for generators and mobile equipment would be stored above ground at the mine site. Two small propane tanks would be used to heat the office trailer and miner's dry trailer (Figures 3 & 4). A 10,000-gallon diesel storage tank will be at the mill site.

2.1.4 Security and Safety Measures

GPMI would employ a Security Director at the mine site to implement company-approved security policies and procedures to ensure employee and public safety. These policies would be implemented at both the Sylvia Mine and mill. They would include fencing around potentially dangerous locations, such as the immediate area around the secondary emergency underground escape and the decline portal entrance. Speed limits would be posted and strictly enforced. All applicable requirements of the Mine Safety and Health Act (MSHA) would be implemented by the company.

2.1.5 Workforce and Housing Facilities

During the construction phase, about 12 workers would be employed at the mine, and 12 at the mill site. After the mine has become fully operational, approximately 20 people will be required for day-to-day operations. No onsite housing associated with the proposed mining activity would be provided at the mine site. A trailer park has been proposed at nearby Denio Junction, located about 10 miles to the north (Figure 1). A private developer would provide approved water and wastewater facilities and all utilities at the trailer camp. This is discussed later in more detail in Chapter 3, Socioeconomics.

2.1.6 Exploration Drilling

Mine planning and calculation of ore reserves require exploration drilling from the surface and underground. GPMI has proposed to conduct exploration activities as part of the P of O. Reverse circulation and core drilling from the surface would occur on existing disturbances and

recently disturbed sites that have naturally revegetated (Figure 3 & 4). Exact locations for the proposed drilling is not currently known, and will depend on needs defined during mine development. Drill holes will be plugged in accordance with NAC-534; these will be done before the drill moves off the location. GPMI will complete concurrent reclamation on these areas as exploration activities are completed, including recontouring the areas for long-term drainage and seeding to enhance natural revegetation. Underground exploration drilling will involve jackleg “longhole” drilling and core drilling for extended distances.

2.2 RECLAMATION

Reclamation would be completed to the standards described pursuant to 43 CFR 3809.420 and NAC 519A. Reclamation would be focused on stabilization and protection of soil erosion through the use of recontouring, regrading, and revegetation activities where appropriate to meet the reclamation objectives as outlined in the U.S.D.I. Solid Minerals Reclamation Handbook #H-3042-1 (BLM, 1992), Surface Management of Mining Operations (NSO) Handbook H-3809-1 (BLM, 1989a), and re-vegetation success standards per BLM/NDEP “Final Version of the Revised Guidelines for Successful Mining and Exploration Revegetation” (BLM, 1999). This goal also considers the need to protect and preserve existing cultural/historic resources, and to protect public health by eliminating hazards. Previous historic mining features and cultural resources at the site require that these resources would be avoided and/or mitigated as part of the new proposed mining and reclamation activities.

2.2.1 Interim or Concurrent Reclamation

This would involve initial grading and stabilization. Growth media and Tertiary tuffaceous volcanic waste rock from the Sylvia Mine Sill drift would be stockpiled, as practicable. Interim reclamation and revegetation measures necessary for stabilization and water management such as storm conveyance channels, dispersion terraces, silt fencing, and selective mulch blankets would be installed as necessary.

Concurrent reclamation would focus on areas of existing exploration disturbance, which GPMI has accepted from Win-Eldrich, the former operator. Selected areas around the mine portal and Morris Mill would be seeded in the spring of 2006 with certified weed-free seed mix after preparing the targeted seedbed areas during the construction activities. This would further deter the establishment of invasive and undesirable species and noxious weeds. All concurrent revegetation would be accomplished using the seed mix listed below in Table 5, Recommended Midslope Seed Mix. At the lower elevation Morris Mill, seed mix required in the approved NDEP-BMRR Ashdown Sylvia Mine Project Reclamation Plan would be used. Only certified weed-free seed would be used.

Table 5. Recommended Midslope Seed Mix (Elevations: 4500' – 6000')		
Species	Variety	PLS* lbs./ Acre
Fourwing Saltbush	Native	3.0
Blue Flax	Appar	0.5
Alfalfa	Ladak	1.8
Forage Kochia	Immigrant	0.5
Crested Wheatgrass	Hycrest	2.5
*PLS – Pure Live Seed		

While no seasonal or temporary closure is planned, GPMI has developed an “Interim or Temporary Closure Plan”. The plan is included as Appendix 2 of this document.

The following reclamation BMPs would be utilized by GPMI as part of the concurrent planning and implementation program. These practices would be applied to reduce the potential for soil erosion and sediment loading:

- The disturbed areas would be kept to a minimum at any given time through phased construction and concurrent reclamation, as practicable.
- Road grades would be designed to facilitate drainage (crowned with drainage ditches).
- Diversion ditches would be constructed to divert run-on around mine portal, waste rock storage site, the Morris Mill, and newly reclaimed sites.
- Exploration drill holes would be drilled and plugged according to the Nevada State requirements. Drill chips and incidental sludge generated during drilling would be disposed of in shallow sumps within the pad disturbance. The sumps would be refilled with soil-like material after drilling fluids have evaporated, and recontoured and seeded.
- Sediment basins, silt fences, waddle, and straw bale dams would be installed in areas requiring additional sediment and erosion control.
- Concurrent and interim revegetation would be used to stabilize inactive disturbed areas.
- Roads and water control structures would be maintained on a regular basis during operations.

- Reclaimed slopes would be inspected weekly during operations for evidence of erosion, and “reclamation maintenance” would be performed as necessary.

2.2.2 Final Reclamation Plan .

At the time all mining, and exploration activities have ceased, the following closure and final reclamation activities would be implemented by GPMI, as modified in the BLM/NDEP-BMRR approved “Final Reclamation Plan”. All reclamation would be completed to the standards described, pursuant to 43 CFR 3809.40 and NAC 519A.

Mine Site:

- At the permanent cessation of mining activities, the Sylvia Mine adit raises to the surface would be permanently sealed by the placement of concrete and rock plugs, or steel bulkheads.
- The vent raise would be sealed by the placement of a concrete plug, covered with at least one foot of growth-medium, and revegetated with prescribed and approved (BLM/NDEP) seed mix.
- The two RIB’s would be filled and covered with suitable material. Stockpiled topsoil previously removed from the sites would then be applied. The sites would then be revegetated using an approved BLM seed mix. Water pipes would be cut off at ground level and all above ground piping would be removed and disposed of properly off-site or reused at another operation.
- The monitoring wells, domestic well, and dewatering well would be abandoned according to state requirements, including bentonite or cement plugging (per NAC 534.420), and other related necessary reclamation activities for establishing a productive post-mining use of land.
- All salvageable equipment, instrumentation, and unused petroleum products and chemicals and solid wastes from the underground mine would be used or recycled. Examples include piping, pumps, diesel, lubricating fluids, etc. Used and waste petroleum products and chemicals would be disposed of at a Class I landfill. Non-hazardous solid wastes would be disposed of at a Class III landfill. Water pipelines from the underground workings would be removed and hauled off-site for future re-use.
- Exploration drill holes would be plugged according to current BLM regulations. Drill cuttings from the exploration activities would be contained onsite in sumps during drilling, and covered, recontoured and revegetated at closure.
- Noxious weeds would be eradicated and/or controlled during the reclamation process. This program would be expected to be limited, as the preventative BMP program within the mining area implemented during mining would largely mitigate the issue.

- Drainage structures constructed for haul roads would include properly installed ditches, water-bars, cross drains and design flow culverts, as needed. All safety berming would be removed and regarded at closure. Both haul roads and exploration roads would be recontoured and seeded with approved mixtures as part of the Final Reclamation Plan.
- All mining equipment, trailers, supplies, the cement silo, and other mine site infrastructure will also be removed (demobilized) from the site.
- The existing steel building's concrete foundation and floor at the site would be demolished, and either dumped in the Sylvia decline, hauled offsite, or broken up and covered with at least one foot of growth-medium and revegetated.
- GPMI would recontour the active sidewall of the County gravel pit to approximately 3:1 slopes at closure, in order to mitigate any, safety issues, assuming the pit is utilized by the mining operation.
- Unless specified in this EA and the Final Plan of Operations, all post-1981 disturbance would have final grades recontoured with seeding planned to be conducted between October 14th and November 14th each year following completion of recontouring.
- The 10 Level adit would be sealed with a concrete plug.

Mill Facilities:

- The mill site property owner, Claude Edward Morris, has indicated a desire to leave the mill building standing at closure. It would be used as a warehouse for farm equipment and other items after cessation of mineral processing. The new water well will also be retained.
- Mr. Morris also desires to leave the existing water well in place to continue to provide the residence's water supply.
- Soils under and adjacent to the fuel storage areas would be tested for contamination, and the results would be submitted to the BLM and NDEP-BMRR along with a "final closure activities report".
- All earth moving equipment, the crusher, and the plant processing facility, along with all materials and chemicals associated with the mining operation would be removed from the site at final closure.
- All reagents, petroleum products, solvents and other hazardous or toxic materials in the mill not salvaged would be removed from the site and either reused, or disposed of according to federal and state regulations.

- All salvageable equipment, instrumentation, and unused petroleum products and chemicals and solid wastes from the mill operation would be used or recycled. Used and waste petroleum products and chemicals would be disposed of at a Class I landfill. Non-hazardous solid wastes would be disposed of at a Class III landfill.
- Drainage structures constructed for haul roads to the mill would include properly installed ditches, cross drains, and design flow culverts, as needed. The safety berms would be removed, and the roadside would be recontoured to approach the pre-hauling configuration.
- The small-scale processing facility (Morris Mill) would be reclaimed in a three-step process. Initially, remaining excess process water decant would be allowed to evaporate, and the tailings to further consolidate in the pond. Excavated material from the pond construction will be used to fill the void area within the treatment facility to the top of the berm around the pond. A layer of up to two feet in thickness will then be placed over the top of the pond, recontoured, and seeded with the NDEP/BLM-approved seed mix. This cover would be composed of material that is conducive to revegetation. Final drainage controls would eliminate the potential for ponding over the top of the covered tailings pond. The berm would not be disturbed. This filling technique would allow the 60-mil HDPE liner to remain intact providing long-term ground water protection.
- Monitoring wells at the tailings pond would be abandoned according to NDEP regulations, including bentonite or cement plugging as required.
- A Final Reclamation Surface Contour Map is shown in Figure 10. This configuration is also the basis for installing final long-term water management controls.

2.2.3 Reclamation Monitoring

Surface erosion would be visually monitored on a weekly basis by GPMI during operations. During storm events, or periods of high runoff, the frequency may be more often. Erosion control BMP's would be implemented as needed. Examples include diversion ditches to prevent run on to the mine site, and culverts to carry water across access roadways.

Security measures implemented at the site during operations would be followed during reclamation, including gating and warning signs. At closure, additional safety measures would be employed by GPMI, as described in the requirements for securing abandoned mining operations (NAC 513.330-513.360).

Revegetation monitoring of the reclaimed facilities would be conducted at both the mine and mill sites for at least three years following final reclamation. The monitoring would involve photo-documentation and be conducted during the "peak green" growing season. This program would be coordinated with the BLM and NDEP-BMRR. Reclaimed areas not meeting regulatory standards would be evaluated, and corrective actions implemented. These measures could include, if necessary, additional soil amendments, reseeding, and installation of erosion control

measures. This obligation would cease when the reclamation goals and requirements have been achieved, and upon release of all related reclamation bond(s).

Once all the final reclamation is completed, yearly post-reclamation maintenance would involve remedial dirt work and reseeding, if required. Yearly visits to the site would be conducted to monitor the success of revegetation for a period of three years, or until attainment of revegetation standards established in the *Nevada Guidelines for Successful Revegetation for the Nevada Division of Environmental Protection, Bureau of Land Management, and the USDS Forest Service* (Instruction Memorandum #NV99-013).

2.2.4 Reclamation Costs

Detailed cost estimates would be developed for the Sylvia Mine and Morris Mill processing facility. These costs are subject to BLM and NDEP-BMRR final review and approval. They would reflect prevailing Humboldt County hourly wage rates for equipment operators, engineers and laborers. They would also include supervision, design, contingency, administration, insurance, and bond costs.

2.3 ENVIRONMENTAL MANAGEMENT

GPMI has developed environmental management guidelines specific to the Sylvia Mine to ensure that environmental impacts are minimized or mitigated during the construction and operational phases of the project. Various permits and the reclamation plan would include other operational requirements. These guidelines and/or plans are listed below.

2.3.1 Cultural Resources Management

Protective measures, as described in the Cultural Resources Environmental Baseline Report (Polk, 2006), are described below:

- Employee and equipment access would be limited to the immediate mine area and processing facility location (and the primary transportation corridors).
- Mining activities and exploration would not occur outside the proposed and approved permit area.
- Employee access to known cultural sites on public land would be restricted through implementation by GPMI of an environmental awareness training program.
- Eligible site locations would be avoided as determined by the cultural resources analysis.
- Secondary impacts to cultural resources resulting from road and drill pad construction would be minimized through the sediment/erosion control BMP's.

- Pursuant to 43 CFR 10.4 (g), GPMI would notify BLM authorized officer by telephone and with written confirmation immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony. Further pursuant to 43 CFR 10.4 (c) and (d), the mining operator shall immediately stop all activities in the vicinity of the discovery and protect it from activities for 30 days, or until notified to proceed by the BLM authorized officer.

2.3.2 . Sediment Control

Sediment control would be provided by Best Management Practices (BMP) at the mine site and mill. The waste rock storage site and Sylvia decline entrance would have stormwater diversion ditches to divert runoff around the facilities. The waste rock storage site would be contoured as practicable during operations, and dispersion terraces and silt fencing would be installed to limit sedimentation. Other primary measures to be employed for sediment control are as follows:

- Disturbed areas would be kept to a minimum at any given time through phased construction and concurrent reclamation, as practicable.
- Road grades would be designed to facilitate drainage (crowned with drainage ditches).
- Sediment basins, silt fences, waddle, and straw bale dams would be installed in areas requiring additional sediment and erosion control.
- Concurrent and interim revegetation would be used to stabilize inactive disturbed areas.

2.3.3 Noxious Weed Control

GPMI would be responsible for controlling all noxious weeds and other undesirable invading plant species inside the mine plan boundary until vegetation activities have been determined to be successful and signed off by the BLM and NDEP-BMRR. The company would also obtain a pesticide use permit from the BLM prior to treating noxious weeds. Weed control measures would be implemented and monitored.

2.3.4 Waste Characterization

Representative sampling of waste rock sampling, as determined by NDEP-BMRR, would be conducted on a quarterly basis, including MWMP, acid-base accounting, and metals of concern. Results would be reported to the NDEP-BMRR and the BLM in the quarterly and annual reports, or more frequently as needed. No ore-type material would be stored in the waste rock dump.

2.3.5 Wildlife and Livestock Protection

Approved fencing would be erected around the ventilation-escape raise. and mine entry (Figure 4). The RIB areas would also be fenced and signed per NDEP-BMRR requirements. The fence would be posted that the site is being used for wastewater disposal. The specifications for the

fencing are designed for the various facilities to protect wildlife and livestock resources. “Deer-proof” fencing would also be installed around the tailings pond

To prevent violation of the Migratory Bird Treat Act, GPMI would either conduct new surface disturbing activities outside the migratory bird nesting season (April 15 to July 15), or employ a qualified, BLM-approved biologist to survey prospective work areas prior to surface disturbance during the nesting season. If active nests were located, or if other evidence of nesting (i.e. mated pairs, territorial defense, carrying nesting material, transporting food) were observed, a protective buffer would be delineated and the area avoided to prevent destruction or disturbance to nests until they are no longer active. The site characteristics to be used to determine the size of the buffer are as follows: a) topographic screening; b) distance from disturbance to nest; c) the size and quality of foraging habitat surrounding the nest; d) sensitivity of the species to nest disturbances; and e) the protection status of the species.

To protect any potential hibernating bats during the winter season, no mining or exploration activities would occur from October 1 through March 31) within 200 feet of the 8 Level portal.

2.3.6 Environmental Health and Safety Plan

The construction and operation of the underground mine is regulated by the Federal Mine Safety and Health Administration (MSHA), and the State of Nevada. GPMI must seek approval of this plan which addresses training, construction techniques, safety, noise, and environmental protection (i.e., diesel emissions) prior to the mining operation commencing.

2.3.7 Spill Prevention and Response

Appendix 4 (Transportation Spill Prevention, and Emergency Response Plan) outlines a program to prevent and respond to accidental transportation-related spills at the mine site. It directs how all chemicals and petroleum products would be managed onsite, both at the mine and mill. This includes transport, storage, safety, inspections and disposal. Spill prevention and response procedures are also outlined. These incorporate the requirements of 40 CFR 302.4 of the Comprehensive Environmental Response Compensatory and Liability Act (CERCLA), including the Community Planning and Right-to-Know Act. If any oil, hazardous material, or chemicals are spilled during operations, they would be cleaned up in a timely manner. After clean up, the oil, noxious fluids, or chemicals and any contaminated material would be removed from the site and disposed of at an approved disposal facility.

2.3.8 Environmental Monitoring and Reporting

This plan would be implemented by GPMI to determine if environmental changes are resulting from the project, and to evaluate whether the mitigation measures are successful. Key elements are: 1) the State Water Pollution Control Permit Monitoring Plan to protect waters of the state from degradation (surface and ground water); and 2) the mine dewatering and land application program conducted at the mine and the land application site. These programs focus on waste characterization and water quality protection.

2.3.9 Environmental Training Program

GPMI would also implement an environmental education notification program for its employees. Training would include information on management practices incorporated into the Final Plan of Operations and environmental monitoring and reclamation programs, MSHA training, and the rationale for implementing these programs. Information on cultural resource preservation would also be included in the training.

2.4 **NO ACTION ALTERNATIVE**

Under the No Action Alternative, currently permitted operations approved under the Notice of Intent would be allowed. These include:

1. Development of safe underground access to the Sylvia vein for the purpose of obtaining a representative metallurgical test sample (up to 1,000 tons) to be used in optimizing the process flowsheet and final design of the Morris Mill. This material would be hauled to the Morris Mill for processing or to an alternative off-site facility.
2. Dewatering of the Sylvia Mine decline and underground workings would occur in order to safely access the vein for sampling. Mine dewatering would continue to be applied to a one- acre area through surface spraying under a Temporary Land Application Permit from the NDEP and authorized notice with the BLM. Water will both evaporate and infiltrate into the ground.
3. Placement of up to 4,000 tons of Tertiary volcanics reclamation material from the decline on top of the existing historic waste rock storage site will be used as revegetation media in the surface reclamation at the mine site. An estimated 6,000 additional tons of quartz diorite would also be mined to reach the ore sample. This material would be placed on the waste rock site, or could be used to improve the road surface to the mine site. Pre-existing mining disturbance and the waste rock storage site would be reclaimed by GPMI, including recontouring, ripping, scarifying, and revegetation.

GPMI would also be allowed to complete reclamation of the Win-Eldrich exploration disturbance (mostly drill roads). The total pre-existing area of mining disturbance that GPMI is obligated to reclaim is 4.61 acres (see Figure 3). Permits for new mining operations would not be granted. The Proposed Action in the EA and the Plan of Operations would be denied. Mineral resources in the project area would remain undeveloped.

2.5 **ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS**

2.5.1 Alternative Mill Location on BLM Land

Under the Proposed Action, the processing facility would be located about two miles southwest of the mine on a 20 acre parcel of fee land leased from Claude Edward Morris. The alternate

mill site would be located on public land to the west and north of the mine, just below the existing office trailer and bunkhouse (Figures 2 and 3). This area was proposed for the location of a cyanide leach pad and ponds in a 1990 Billiton Minerals U.S.A. Inc feasibility study. The area is geologically characterized by alluvial fan deposits. No ground water was encountered in the geotechnical, hydrogeologic drilling program conducted by Billiton. The advantages of this alternative are: 1) reduced haulage distance; 2) reduced particulate or dust caused by ore haulage; and 3) more compact project configuration. The disadvantages related to developing either of these sites are as follows: 1) the location of the mill on public land would present a long-term reclamation liability to the public; 2) more public land would be disturbed (about 30 acres, accounting for the reduced access roads to the mill site); 3) the site on the range front (elevation 4472 ft.) would be visible from Highway 140; and 4) a new water supply would have to be developed. This alternative was eliminated from detailed evaluation for the reasons stated.

2.5.2 Alternative Location of Mine Waste Repository

The existing Sylvia waste storage site encompasses three acres about 250 ft. northwest of the Sylvia portal. A new repository could be located on public land in the general area of the second mill site (discussed above). Alternatively, waste could be piled above the proposed reclamation stockpile location by extending or “building out” the Sylvia waste storage site to north.

A new disturbance area sufficient to accommodate about 40,000 tons, about three acres, would be required under this alternative. Placing the waste rock repository further up the hill from the proposed site would be a greater impact to cultural resources, and would be less stable since the slopes are steeper. Additionally, the visual impacts would be greater and the cost to haul the waste would be significantly higher. Locating the waste repository down the hill from the proposed site would lessen or reduce potential visual impacts on cultural resources at the mine site.

However, it would also require that more public land be disturbed, and result in a longer waste haul. This would cause increased dust and overall vehicular emissions. Also it would greatly increase the visual impacts since it would have to be placed west of the hills, which currently obscure the view of the dump in the proposed location. Any alternative location to the existing proposed Sylvia waste repository would not avoid or lessen adverse environmental impacts over the currently proposed location. Therefore, neither of these location options would be considered in detail in this EA.

3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1 GEOGRAPHY, LOCATION, AND CLIMATE

This section describes the existing environment of the proposed project area, and how the area would be affected by the Proposed Action. It includes descriptions of physical, biological, and human resources in the project area. Data for the discussion was gathered during field investigations, taken from the MFP, excerpted from contacts with BLM and other federal, state and local resources personnel, and consolidated from a review of related literature.

The project area is located on the eastern margin of the Bog Hot Valley. The valley is bounded on the east by the Pine Forest Range. The topography of the area varies considerably with the valley floor at approximately 4400 feet a.s.l., and the adjacent mountaintops up to 7000 feet a.s.l. All of the mining would occur in the area, which begins to slope into the steep mountainous terrain from elevation 4700 feet to 4950 feet near the existing Sylvia portal.

Area vegetation is dominated by sagebrush-grass community species. Soils consist of eolian transported coarse-grained sands intermixed with a silt and clay rich matrix.

During the period 1941 to 1970 precipitation in the general project area averaged 4.5–7.0 inches (Dyer, 2005) open-water pan evaporation rate is estimated at 22 inches per year. These estimates of free surface water evaporation were developed using records from Rye Patch Reservoir Experimental station (Dyer, 2005) The precipitation events generally occur as high intensity, short duration thunderstorms or as winter snowfall. A 100-year, 24-hour storm event for this area as predicted by the National Weather Service is 2.19 inches of rain (Bonnin, 2003). Average snowfall is 13.5 inches per year.

There are no mapped floodplains in the project area. Intermittent creeks flow through a portion of the project area and from Cherry Gulch, approximately one mile south of the mine site, providing seasonal sources of water.

3.2 CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT

To comply with the National Environmental Policy Act, Table 6 below lists the critical elements of the human environment that are subject to requirements specified in statute, regulation or executive order. These critical elements must be considered in the analysis of the alternatives of all environmental assessments. The sections in which the criteria are evaluated, are also listed for the reader's convenience.

TABLE 6. CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT				
Critical Element	Not Present	Present Not Affected	Present Affected	Reference Section
Air Quality			X	3.2.1, 4.1, 5.3.1
Areas of Critical Environmental Concern (ACEC)	X			
Cultural Resources			X	3.2.2, 4.2, 5.3.2
Environmental Justice	X			
Farmlands, Prime/Unique	X			
Floodplains	X			
Invasive, Nonnative Species			X	3.2.3, 4.3, 5.3.3
Migratory Birds			X	3.2.4, 4.4, 5.3.4
Native American Religious Concerns	X			3.2.7, 4.6, 5.3.5
Special Status and/or T & E Species	X			3.2.5, 3.2.6, 4.5
Wastes, Hazardous/Solid			X	3.2.8, 4.7, 5.3.6
Water Quality, Surface & Underground			X	3.2.9, 4.8, 5.3.7
Wetlands/Riparian Zones	X			
Wild & Scenic Rivers	X			
Wilderness		X		3.2.10, 4.9, 5.3.8

Certain resource categories are not expected to be encountered or impacted by the Ashdown Project, and are shown in the Table 6 as “Not Present”. Accordingly, they are not discussed in the Affected Environment or Environmental Consequences chapters of this document. They include:

- Areas of Critical Environmental Concern
- Environmental Justice
- Floodplains
- Prime or Unique Farmlands
- Wetlands and Riparian Zone
- Wild and Scenic Rivers

Species of Special Status is the exception. While no animal or plant species of special status were observed during the field investigations, contacts with the U.S. Fish and Wildlife Services and the Nevada Natural Heritage Program indicated that several species have the potential to occur within the project area. Therefore, these species are discussed in the analysis. No Threatened or Endangered plant or animal were observed during the field studies.

In addition to the critical elements of human environment, there are other biological, physical and human resources the BLM considers in the NEPA process. Other resources that have been identified that may be present in the project area, and are analyzed in this EA include:

- vegetation Section 3.2.11
- soils Section 3.2.12
- wildlife Section 3.2.13
- range resources Section 3.2.14
- wild horses and burros Section 3.2.15
- socioeconomics Section 3.2.16
- recreation. Section 3.2.17
- visual resources Section 3.2.18
- public safety Section 3.2.19
- right-of-way Section 3.2.20
- geology and minerals Section 3.2.21
- waste rock characterization Section 3.2.22

3.2.1 Air Quality

Air quality is defined by the concentration of various pollutants and their interactions in the atmosphere. The baseline air quality in rural northern Nevada is typically moderate to good. Air quality at the Ashdown Project area is expected to be good, and currently meets state and federal air quality criteria for particulate, gaseous, and trace metal contaminants except during unusual conditions. The project area is located in a basin that is an “un-classified” area for air pollutants. There are no non-attainment areas in the vicinity of the project. Total suspended particulate (TSP) and PM-10 in the study area are currently generated by vehicle traffic on dirt roads, wind events, and livestock handling. The mining operation would not be located adjacent to any other industrial sources.

Although air quality throughout rural northern Nevada typically meets federal and state ambient air quality criteria, the region is subject to infrequent, short-duration wind-blown dust storms. These storms can create particulate levels above the 24-hour standard. However, federal and state “exceptional event criteria” for strong wind gusts and elevated wind speeds exempt excursions due to storm and wind events from regulatory enforcement action.

3.2.2 Cultural Resources

Early fur trappers were largely responsible for opening this part of the Great Basin in Northern Nevada. Around 1826, Jedediah Smith and Peter Ogden first explored the area entering Nevada near the present-day community of Denio. Later that year, Ogden reached what is now known as the Humboldt River in his travels.

The Northern Paiute:

The territory of the Northern Paiute is described as extending north from Death Valley through the high mountainous and desert regions of western Nevada and into southern Oregon (Stewart 1966a). The Northern Paiute and Mono make up the Western Numic part of the Numic culture. These groups share linguistically similar, but distinctively different variations of the Numic

language within the larger Uto-Aztecan (or Tanoan-Aztec) language group (Miller, 1986; Stewart, 1966b). At the time that the first non-Native Americans (European-Americans) entered the project area, the Northern Paiute bands that occupied this region were identified as the *Agai Panina Ticutta* (“trout lake eaters”) and the *Moa Ticutta* (“wild onion eaters”) (Inter-Tribal Council 1976:11,86; Stewart 1966a)

The Northern Paiute occupied an arid steppe and desert zone containing north-south trending mountain ranges that naturally separated them into smaller groups or bands. Cultural characteristics tended to reflect these rigorous environmental and ecological constraints. Various groups or bands have been identified by the geographical names of the areas that they inhabited (Polk et al, 2006). Thus, while the Northern Paiute have been defined as a group through linguistic evidence, geographical and ecological differences existed that separated them into numerous groupings, such as bands or large extended family groups.

The Northern Paiute diet relied predominately upon the procurement of plant matter (i.e. seeds, pine nuts, roots, berries). Groups living south of the Humboldt River were engaged in the procurement of piñon nuts for food and trade, while those north of the river emphasized the gathering and processing of roots (Fowler and Liljeblad, 1986). Hunting of game included rabbits, antelope, desert bighorn sheep, rodents, lizards/snakes, and local fowl populations. Fishing was an important food source in the lakes and along the streams where and when available. These foraging strategies relied upon small group movements through large key areas in order to harvest dominant resources as they became available. In the case of significant aboriginal fishery areas, movements were more restricted, since the more dependable riverine food resources required less wide-ranging procurement activities. This was especially true of the Humboldt River and, to a lesser extent, its larger tributaries, as well as the larger rivers draining northward into the Snake River (the Owyhee River and its forks and the Little Salmon River) (Polk et al, 2006).

Major Cultural Impacts:

Contact between the Native Americans and the ever increasing European American population greatly changed the culture of the Northern Paiute. In 1847, Mormons entered the Great Salt Lake Valley to the east and soon began to spread out. In an effort to occupy as much land as possible and to establish economic enterprises along the various transportation routes, Mormon settlements and communication corridors were established throughout the intermountain west, including much of Nevada. It was this expansion by settlers into Nevada that also brought the Native American and Anglo cultures into direct contact (Polk et al, 2006)

The first ranches were established in the 1840’s and 1850’s in the area. Cattle ranching flourished, spurred by access to outside markets via the Transcontinental Railroad. This was an important part of the local economy.

With the discovery of gold in California in 1848, many travelers passed through the area; and the communities of Mormon Station (later Genoa), Winnemucca, and Frenchman’s Ford were established. In 1885, a settler named Aaron Denio founded a post office at community of Denio.

With the discovery of silver in the Nevada Comstock in 1860, the communities of Vicksburg (Ashdown) and others sprung up. Between 1859 and 1937 the mines in Humboldt County produced \$8.75 million worth of mineral resources (Polk et. al., 2006).

Ultimately, the Vicksburg Mining District was organized, and a small mill was constructed to process ore. Indigenous groups continually raided the remote site, and the population remained small. However, between 1904 and 1905, “Jimmy” Ashdown filed 15 patented claims at site, and Ashdown included a mill, post office, saloon, general store, and boarding house. The Ashdown Mine operated at five different working levels. The mine produced intermittently until 1915, when an increase in gold prices caused the Ashdown Gold Mining Company to build a new 60-ton mill. Production was intermittent until 1942 when the War Production Board ordered all nonessential gold mines to cease production to channel labor into industries supporting the war effort.

Since 1960 various operations have been conducted at Ashdown. This has included American Copper and Nickel, Win-Eldrich Mines, and Golden Phoenix Minerals, Inc.

An archeological survey was conducted within an irregularly shaped parcel containing approximately 271.5 acres (109.8 ha) of public land administered by the BLM, Winnemucca Field Office (Figure 2 and 3). The survey area was inventoried in parallel transects spaced no more than 30 m (100 feet) apart. The final result was a 100 percent inventory of all lands located within the extended project area.

Per Nevada BLM guidelines, all cultural resources located within the proposed project area were documented according to isolate/site criteria. All sites located during the field inventory were recorded by Sagebrush Consultants on either the *Nevada Short Form* or the *Intermountain Antiquities Computer System (IMACS)* site form. Isolated finds identified during the inventory were tabulated and summarized. Standing structures were recorded on the *Nevada Historic Properties Inventory Form*.

Two sites are recommended for the National Register of Historic Places (NRHP): the Ashdown Mine (CrNV-21-311), and a prehistoric lithic scatter (CrNV-21-7792). Other sites were evaluated for significance and recommended NOT eligible for the NRHP.

3.2.3 Invasive, Non-Native Noxious Weeds

Invasive, non-native species and noxious weeds are plant species designated by the Secretary of Agriculture, Secretary of Interior, or by State law or regulation. Nevada has listed 42 non-native invasive plant species that require control. A complete list of these weeds is attached. Of these 42 species, 13 are found in the Winnemucca BLM District, and are listed below in Table 7, Invasive Plants.

Table 7 Winnemucca District Invasive Plants	
Common Name	Scientific Name
Poison Hemlock	<i>Conium maculatum</i>
Russian Knapweed	<i>Acroptilon repens</i>
Spotted Knapweed	<i>Centaria maculosa</i>
Leafy Spurge	<i>Euphorbia elsua</i>
Medusahead	<i>Taeniatherum caput-medusae</i>
Tall White Top	<i>Lepidium latifolium</i>
Puncturevine	<i>Tribulus terrestris</i>
Salt Cedar (Tamarisk)	<i>Tamarix ramosissima</i>
Canada Thistle	<i>Circium arvense</i>
Musk Thistle	<i>Cardus nutans</i>
Scotch Thistle	<i>Onopordum acanthium</i>
Yellow Star Thistle	<i>Centaria solstitialis</i>
Hoary Cress	<i>Cardaria draba</i>

Nine vegetation transects (15 ft. by 50 ft.) were established on a random basis at the mine site. No noxious weeds were identified in any of the transects. However, new surface disturbance associated with development of the mine and mill facilities would increase the potential for and promote the establishment and spread of invasive, nonnative, and noxious weeds. For example, Scotch Thistle (*Onopordum acanthium*) listed in Table 7 was observed in a small area near the mine.

When introduced to an area, these non-native invasive plant species can quickly dominate the landscape. Nevada Revised Statutes, Chapter 555.05 mandate that land owners and land management agencies control noxious weeds on lands they own and under their jurisdictions.

3.2.4 Migratory Birds

Neotropical bird species are those that breed in temperate portions of North America and winter in either Central or South America. All birds except gallinaceous species are considered migratory, as listed in 50 CFR Section 10.13. Some migratory birds could utilize the area briefly, but the absence of surface water tends to reduce the occurrence of birds. The lack of vertical habitat structure and complexity also limits the available resources for neotropical migrants. Migratory bird species are protected by international treaty with special emphasis on maintaining or improving habitat, as provided by Executive Order #13186. The nearest year-round water body is Continental Lake, which is located 3.5 miles to the north of the mine site.

Migratory bird species associated with the vegetation communities in the project area include: western meadowlark, sage sparrow, black throated sparrow, and common raven. Species of shorebirds and/or waterfowl like killdeer, American coot, Canadian goose, and mallard have been observed at Continental Lake.

The Nevada Department of Wildlife has issued an Industrial Artificial Pond Permit #S 26516 to GPMI. This permit stipulates that “all waters that contain any chemical or solution at levels lethal to wildlife must be covered or contained in a manner that shall preclude access by birds and bats”.

3.2.5 Threatened, Endangered, Candidate & Special Status Species – Wildlife

The special status species are those species for which state or federal agencies provide additional protection by law, regulation, or policy. Included in this category are species which are protected by the Endangered Species Act of 1973, as amended (ESA), or by NES 527.270-300, species of concern identified by the U.S. Fish and Wildlife Service (FWS). Other special status species are those designated as State sensitive species by the BLM. In addition, the BLM has incorporated, in part, the Nevada State Protected Animal List (NAC 501.100-503.104) into the sensitive species list.

The FWS was contacted to provide a list of Threatened, Endangered, Candidate and Special Status Species for the Ashdown project area. The agency responded by letter dated December 27, 2005 that they are concerned the project may impact the pygmy rabbit (*Brachylagus idahoensis*), a species petitioned for listing under ESA. No pygmy rabbits were observed during the field studies as noted by Montgomery Watson Harza (MWH) during their 2004 field reconnaissance..

Several sensitive bird species may be found in the project area. These were identified by the USF&WS, and the NNHP (MWH-a, 2004).

- Golden Eagle – *Aquila chrysaetos*
- Burrowing Owl – *Athene cunicularia*
- Northern Harrier – *Circus cyaneus*
- Prairie falcon – *Falco mexicanus*

Western sage grouse is also a BLM sensitive species that could inhabit the area. However, none of these birds were observed during the field review. The big sagebrush/disturbed area lying upslope and downslope from the proposed mine site (about 40 acres) is heavily disturbed by historic and continued human activity. In the lower flat area around the mill site, habitat is characterized by lessor amounts of low sagebrush, rabbitbrush, and horsebrush. This area has low habitat suitability for sage grouse leks (MWH, Personal Communication, 2005).

BLM policy is to provide these species the same level of protection as is provided for candidate species in the BLM Manual 6840.06C. This protection is to ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as Threatened or Endangered

Montgomery, Watson, and Harza (MWH-a, 2004). *Wildlife Technical Memorandum Ashdown Mine Project* lists all the terrestrial vertebrate species listed as sensitive by the NNHP for Humboldt County. None of these species or their sign were observed during the field study. The

NNHP data request response letter listed a potential habitat for Alvord chub (*Gila alvordensis*) within their query township ranges and sections. However, there is no aquatic habitat for this species within the study area (MWH-a, 2004). MWH also summarizes 6 bat species as sensitive and present in Humboldt County. These include:

Common Name	Scientific Name	Habitat
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Caves, Mines
California myotis	<i>Myotis californicus</i>	Crevices, Mines
Western small-footed myotis	<i>Myotis ciliolabrum</i>	Caves, Mines
Fringed myotis	<i>Myotis thysanodes</i>	Caves, Attics
Little brown myotis	<i>Myotis lucifugus</i>	Cliffs
Spotted bat	<i>Euderma maculatum</i>	Cliffs

No bat species were recorded during the baseline field reconnaissance. However, the general project area does contain potential habitat for these species, especially local historic mine workings, which have been previously mined out.

Additional discussion on existing wildlife resources is presented later in Section 3.2.12 of this document. This write-up summarizes other potentially affected resources by the Proposed Action (MWH-a, 2004).

3.2.6 Threatened, Endangered, Candidate & Special Status Species – Plants

A list of all Nevada listed Threatened and Endangered Plants is shown in MWH-b, 2004. *Vegetation Technical Memorandum Ashdown Mine Project*, Table 10. Their may be habitat for Pueblo Valley peppergrass (*Lepidium montaman*) in the general study area, since the Nevada Rare Plant Atlas lists its occurrence near the project site. However, no peppergrass was observed during the field study. Additional discussion on local vegetation present at the project site is provided later in Section 3.2.10 of this chapter.

The federally listed Threatened & Endangered plant species for Humboldt County were obtained from the Nevada Natural Heritage Program, and are listed in MWH-b, 2004. The Pueblo Valley peppergrass is listed as possibly being in the study area, occurring in “sand dune-type” habitat. No listed species were observed in the immediate project area

No federally listed Threatened or Endangered plant species listed in MWH-b, 2004 were observed in the study area. Therefore, the Proposed Action would not adversely affect threatened or endangered terrestrial plants.

3.2.7 Native American Religious Concerns

The project area is heavily disturbed by previous historic mining and some grazing. There are no known Native American concerns. The area is within the Northern Paiute traditional territory. Local Tribal entities were contacted as part of the EA process.

3.2.8 Hazardous Materials/Solid Wastes

The types of chemicals and hazardous materials that may be used at the mine and mill sites are as follows:

- diesel fuel (mining and processing)
- petroleum lubricants (mining and processing)
- isopropyl alcohol (processing)
- hydrated lime (processing)
- activated carbon (processing-not hazardous)
- flocculants (processing)
- gasoline (processing)
- nitric acid (processing)
- acetone (processing)
- sodium hydroxide (processing)

Diesel fuel will be stored in designated areas, inside a bermed and lined containment area. The containment areas are designed to contain all the fluids in the tank, plus the 25-year, 24-hour storm event. The fluid management system at the process plant is also designed to contain all fluids stored and/or “operating” inside the building, plus a 10 percent safety factor. Laboratory chemicals are stored and separated on the basis of compatibility, and in accordance with State regulations.

The tailings pond is sized to contain all process solutions in the system at any given time during operations. The pond will also accommodate the volume of precipitation associated with the 100-year, 24-hour storm falling on top of the pond, plus all the tailings, plus one foot of freeboard. This would account for power outages or extraordinary storm events.

GPMI has prepared a Transportation Spill Prevention and Emergency Response Plan which would govern the transport of chemicals and diesel fuel to the mine site (Appendix 4). The plan describes specific routes to be used and restrictions for transport trucks during inclement weather. Specific mitigation and monitoring are discussed later in this EA.

Humboldt county is serviced by a single Class 1 regional county landfill located near Winnemucca. The Humboldt County Regional Landfill has capacity for at least 10 years. Denio Junction operates a solid waste transfer station, which would be used for the disposal of domestic solid waste from the Ashdown Project.

3.2.9 Water Quality

3.2.9.1 *Surface Water*

Water resources on federal lands within the immediate project area are limited to ephemeral drainages, which flow only in response to large precipitation events and spring snowmelt. The

potential for short-duration high-intensity thunderstorms does exist at the site. The 100-year, 24-hour storm is estimated at three inches of rainfall.

Water quality data for the ephemeral drainages does not exist. However, surface water quality can be generalized as most likely good quality for dissolved constituents, and moderate to poor quality for physical parameters such as suspended sediment and turbidity based on comparative samples from the underground workings. One small spring intermittently flows from above the Sylvania adit. Water is collected in a small drainage primarily in the spring season, and flows through decomposed quartz diorite alluvium for distances generally less than about 4000 feet. Pooling also occurs early in the runoff season. Quality is nearly identical to Sylvania Mine water samples. Flows are very limited and appear to be largely dependent on precipitation and recharge conditions.

3.2.9.2 *Ground Water*

Knowledge of the hydrologic system in the mine area consists of observations, numerous drill holes near the mine, the underground workings, six drill holes in the alluvial fan, scattered agricultural water wells, and tailings pond test pits in the valley bottom.

The area can be subdivided into three distinct hydrologic units; two major bedrock units and one alluvial unit (Bog Hot Valley see Figure 9). The Sylvania adit is collared in an intermediate, clay-like tuff (Tv) and the orebody is hosted in crystalline Mesozoic quartz diorite (Mqd). ACNC in-house reports and recent observations by GPMI mine personal demonstrate that the water in the Mqd is compartmentalized in clay-filled fractures. Anecdotal evidence suggests a significant amount of hydrologic head can be developed in some of these fracture reservoirs with stories of drill holes intersecting water under high-pressure (John Davis, personal communication). At the same time, the volume of water contained in the fractures is small and water flows decrease rapidly to seeps or dry up altogether.

The Bog Hot Valley aquifer is fed by Alder and Craine Creeks to the south of the project area, and Thousand Creek and other perennial drainages from the west and northwest. Other largely ephemeral drainages and springs in the Pine Forest Range also contribute to the valley aquifer near the project.

Figure 2 shows three wells in Bog Hot Valley in the vicinity of the flotation mill. The average depth to the water table is 11 feet at an elevation of about 4225 feet. The groundwater is hosted in sand, gravel and silt interbedded with clay layers. An irrigation well 2000 feet southwest of the mill contains numerous groundwater horizons to a depth of 500 feet. A pump test of this well produced 1,900 gallons per minute from a depth of 190 feet (Morris, personal communication). Three ground water test holes were drilled just west of the range front in 1990 (Figure 2). The holes were drilled to a maximum depth of 200 feet. One hole intercepted less than one gallon per minute at the bedrock contact with no increase at the bottom of the hole. The other two holes were dry. These results indicate that the saturated water table in this area is below 4292 feet in elevation. The three holes intercepted alluvial fan deposits of sand, gravel, and clay derived from the weathering of the diorite located in the mountain range to the east. An average of 150 feet of

alluvium occurs above volcanic rocks equivalent to the rocks exposed at the range front (Nork, 1990).

The piezometric surface in the bunkhouse well, located near the mouth of the canyon leading into the mine area, is 37 feet below the surface at an elevation of 4543 feet. This well contains a 98 foot section of boulders or highly fractured rocks which lie 114 feet below the alluvial fan deposits and on top of comparatively impermeable, clay-like volcanic tuffs (Figure 9). The section of "boulders" is thought to correlate with a thin (approximately 70 feet) layer of welded tuff which is part of the Tertiary volcanic sequence. The welded tuff is resistant to erosion and forms the prominent hogback along the range front; however, it is highly fractured in outcrop and would provide a very permeable aquifer, capturing water that flows out of the canyon through the shallow alluvium. This would explain the lack of water in the alluvial fan deposits to the west, which was demonstrated in the 1990 hydrologic study. In addition, the development of the small canyon is thought to have taken place along an east-west fracture zone, which could further serve to enhance permeability in the immediate area.

East of the bunkhouse well approximately 1,200 to 3,000 feet are the historic gold mines of the Ashdown district and the Sylvia molybdenum vein (Figure 9). Numerous holes drilled to a depth of 250 to 300 feet in the gold zone on both sides of the Sylvia vein were dry (Pete Winn, personal communication). The 4-level, 8-level, 10-level, and 12-level gold mines were dry. Examination of the timbers in each mine level suggests that the mines were historically dry. The Sylvia decline driven from the portal of the 12 level has filled with ground water since the conclusion of the mining the molybdenum vein in 1982. The Sylvia decline flowed from the portal at an elevation of 4663 feet, indicating a minimum pre-disturbance piezometric elevation of 4663 feet. Recent development work to drive an access drift around a caved area encountered dry volcanic tuffs down to an elevation of approximately 4618 (45 feet below the hydraulic head) where a small amount of water was intersected in fractures. This further demonstrates that the water is contained and compartmentalized in fractures. An in-house ACNC report on the mine conditions in the Sylvia decline written in 1983, also refers to fracture-controlled water entering the mine. The fractures are generally filled with clay, which restricts water flows.

Examination of the Sylvia decline and the 10 level indicates that the volcanic rocks and diorite, which hosts the molybdenum vein, are not particularly porous or permeable. The ground water is strongly controlled by fractures and faults. Faults west of the Sylvia vein crossed in the driving of the new Sylvia decline dewater rapidly (Ed Falk, personal communication) suggesting low groundwater storage capacity outside the Sylvia vein. Historically, the mine water flow from the portal varied seasonally, ranging from a low of 5 to as high as 25 gpm for the periods of record. This record included November 2004 through January 2005, and June through August of 2005 (Falk & Colwell, 2005). Weekly averages for these periods were 5.2 gpm and 10.3 gpm, respectively. It is reasonable to assume that the spring melt may increase the inflow to a range of 20 to 25 gpm for a short timeframe.

Ground water chemistry has been analyzed from seven sources which include: 1) four wells near the mill, 2) the bunkhouse well, 3) Sylvia decline, and 4) a drill hole sample that penetrates the underground workings at the Sylvia vein (Appendix 3). The seven sample sites indicate a

slightly basic pH ranging from 8.07-8.18, with an average of 8.15. All the samples from the mine meet the Federal Safe Drinking Water Standards. The bunkhouse well was slightly elevated in arsenic (0.013 mg/l) in the sample taken in 2004. An earlier sample taken in 1990 was elevated in arsenic (0.18 mg/l) and selenium (0.34 mg/l). This compares to the drinking water standards of 0.05 mg/l for selenium and 0.01 mg/l for arsenic. Samples from the shallow Morris domestic well and two new monitor wells were slightly elevated in arsenic ranging from 0.012 to 0.020 mg/l. The deeper Morris irrigation well exceeds Federal Drinking Water Standards. Generally, all water samples tested contain moderate alkalinity (250 mg/l), very low metals (As, Cd, Cr, Fe, Pb and Hg), and moderate concentrations of total dissolved solids (TDS) (Falk and Colwell, 2005). The fourteen water samples tabulated in Appendix 3, have been taken over 20 months in 2004 and 2005 in the Sylvia decline.

The groundwater used at the mill is contained in a closed system designed to meet the State's zero discharge requirement. The water management system includes:

- storm channel diversion for the 100-year 24 hour storm around the processing facility,
- tailings facility fenced and lined with a 60-mil HDPE liner, prepared sub-base liner and two monitor wells, and
- internal (inside the mill) containment system designed to store all the process solutions plus 10 percent of the total potential fluid in the system.

At closure, excess process solutions in the tailings pond will be evaporated and then covered with three feet of growth medium and revegetated. These practices will prevent surface and ground water degradation. Two monitor wells near the tailings impoundment will also be used to monitor the water table and water chemistry, and will be used as a leak detection system.

A comprehensive groundwater and geological waste characterization analysis was conducted for the proposed mine area (GPMI, 2005). The complete water analyses are included as Appendix 3 and water and geologic waste characterization is included in Falk and Colwell (2005).

3.2.10 Wilderness

The Alder Creek and Blue Lakes Wilderness Study Areas are located approximately 7 miles south of the project area. These areas could be affected by the project to the extent that additional traffic will be visible on the county road, as well as project traffic on the haul road between the mine and mill. Any mine activities on the surface, such as the waste storage facility, are hidden from view at the bottom of the canyon. Fugitive dust from the vehicle traffic and other activities may also have some affect on the wilderness.

3.2.11 Vegetation

A field reconnaissance of the project area was conducted by MWH scientists on October 5 – 8, 2004, to review vegetation baseline conditions within the study area. Terrestrial plant communities were observed and documented in field notes, and digital photographs were taken

of potentially affected areas. Findings from this study are presented in MWH-b, 2004 *Vegetation Technical Memorandum Ashdown Mine Project*.

Four separate plant communities were identified within the study area during the field reconnaissance: Big Sagebrush/Cheatgrass, Big Sagebrush/Bluebunch Wheatgrass, Big Sagebrush/Disturbed, and Grassland. The dominant species for the Big Sagebrush/Cheatgrass community are: Artemisia tridentata (big sagebrush), Atriplex confertifolia (saltbrush), Bromus tectorum (cheatgrass), and Chrysothamnus humilus (green rabbit-brush). Dominant species for the Big Sagebrush/Bluebunch Wheatgrass Association are: Agropyron spicatum (bluebunch wheatgrass), Artemisia tridentata (big sagebrush), and Poa sandbergi (Sandberg's bluegrass). Big Sagebrush/Disturbed is dominated by: Agropyron spicatum (bluebunch wheatgrass), Artemisia tridentata (big sagebrush), Salvia dornii (purple sage), and Stipa comata (needle and thread). The Grassland Association is mainly comprised of Agropyron spicatum (bluebunch wheatgrass), Bromus tectorum (cheatgrass), Elymus cinereus (giant wildrye), and Festuca idahoensis (Idaho fescue). Delineation of the plant communities are shown on maps located in the *Vegetation Technical Memorandum Ashdown Mine Project* (MWH-b, 2004).

Big Sagebrush/Cheatgrass occupies about 155 acres of the total 246 acres survey, or about 63% of the lowland area. The Big Sagebrush Bluebauch Wheatgrass comprised about 47 acres, or 19%; the Big Sagebrush/Disturbed accounted for about 39 acres, or 15%. Grassland occupied only about 1.4 acres.

The field reconnaissance was conducted late in the growing season; therefore, spring flowers were not observed. The site also shows signs of grazing, which could have an affect on the number of species observed in some sections. There were no overstory species within the study area, except for several cottonwood trees below the mine. These were planted around the historic bunkhouse complex by miners.

3.2.12 Soils

Four soil samples were collected for texture and fertility analysis. The samples were collected as composites from 2-3 locations within each plant community. The soil samples were sent to Western Laboratories in Parma, ID for fertility analyses. The laboratory results are also included in MWH-b, 2004 *Vegetation Technical Memorandum Ashdown Mine Project*. The soil conditions for the four main soil types are as follows:

- Waste rock storage site – 45% sand, 35% silt, 20% clay, sandy loam
- Upper waste rock storage site – 70% sand, 18% silt, 12% clay, sandy loam
- Sagebrush, mine site area – 70% sand, 14% silt, 16% clay, sandy loam
- Land application RIB area – 72.5% sand, 15.5% silt, 12% clay, sandy loam

The higher sand content and lower clay content exhibited in soils in the upper waste rock area and mine site tend to reduce runoff from the area, except as collected in the major drainageways. The interim land application and Proposed Action land application areas are conducive to infiltration and limited runoff.

3.2.13 Wildlife

A field reconnaissance was conducted by MWH Wildlife Biologist during August 24 and 25, 2004 to review wildlife baseline conditions within the study area (*Wildlife Technical Memorandum Ashdown Mine Project*). Terrestrial wildlife and wildlife sign were observed and documented in field notes. Transects were walked and waypoints along the transects were recorded in a geographical positioning system and mapped in a geographical information system. There is no fisheries/aquatic habitat in the proposed project area.

Wildlife species observed included: blacktail jack rabbit, spiny and long-nosed lizards, desert horned lizard, western meadowlark, chukar, and common nighthawk. Mule deer, coyote and badger were also seen. Wildlife species and sign observed during the field investigation are listed in the MWH-a, 2004 report. While bald eagles have been sighted at Onion and Knox Reservoirs in high elevations of the Pine Forest, however, none have been observed in the Study Area.

3.2.14 Range Resources

The subject BLM land is included in the Alder Creek Ranch allotment, authorized under the Taylor Grazing Act. The adjacent landowners (David Herrman and Claude Edward Morris) are the livestock permittees for the allotment. The grazing use and use of the land for roads have traditionally been compatible with each other. Private lands in Nevada come under Nevada's open range law, which states that the private property owner is responsible to fence the private land to keep the range cattle off his/her private land. The cattle in the allotment have access to graze throughout the permitted area. No major new grazing or agricultural development is projected at this time (BLM, Personal Communication, 2005).

3.2.15 Wild Horses and Burros

Wild burros are occasionally found in the area. The location is not in a herd management area (HMA). In March, 2006 relocation would be conducted for the limited number of animals as an ongoing management activity, according to the BLM.

3.2.16 Socioeconomics

The project area is located within Humboldt County, Nevada. Humboldt County is the fourth largest of 17 counties within the State of Nevada. The county encompasses a total area of approximately 6.2 million acres (9,700 square miles) and is sparsely populated. Approximately \$323.6 million of earnings were generated within Humboldt County for 2002 (U.S. Department of Commerce, 2002). The Agriculture and Agricultural Services sector generated approximately \$57.0 million of revenues (USDA, NASS, 1997). Total employment for Humboldt County is approximately 9,836 jobs. Service industries are the largest employers followed by retail trade and mining.

In 2002, approximately 76 people lived in the immediate Denio area with 54 households recorded. The 2004 population was 57. The largest employer in the area was agriculture. More recently, the mining employment sector has shown noteworthy increases, which are attributed to work at the Ashdown Project. Other businesses have included lodging, food services, and fuel supply.

The Ashdown Project would provide about 24 jobs during operations. As currently planned, a private developer would build and maintain a 30-unit trailer park at Denio Junction. The facility is currently served by water and wastewater facilities, and power hookup. Denio Junction is also served by a small motel. It is also reasonable to assume a small portion of the workforce (three to five) may commute from Winnemucca.

Contacts with the Humboldt County School District indicate that Denio Elementary School had 19 students in 2004 in grades KG-8. This is a slight increase over 1995. Humboldt County has a volunteer fire department (about 50 people). They have developed response areas and boundaries and implemented a Fire Safe Council Plan which defines: 1) fire protection capability, 2) fire safety education, and 3) risk and hazard assessment standards. This planning and coordinating effort also addresses community preparedness and response, and related fiscal issues. Ambulance services are provided by a volunteer team for emergency transport to local hospitals. A Care Flight service can be called in from Reno to the mine site in the event of a serious emergency. The Humboldt County Sheriff's Office is made up of seven units under the command of the Sheriff's Captain. Four resident deputies are assigned to and stationed at the outlying areas of the county, including the mine site.

The water supply in Denio is ground water. The water supply at the mine site is also ground water. Water supply needs are described earlier in Section 2. Wastewater treatment at the community of Denio is by septic tanks. Wastewater at the mine site would be by septic tank or commercial porti-units. Humboldt County operates a Class 1 Regional County Landfill near Winnemucca. Denio Junction operates a transfer station.

Sierra Pacific Resources provides electric power to Humboldt County via the coal-fired power plant in Valmy. Sierra Pacific states that there is currently adequate power capacity for Humboldt County. Harney Electric Cooperative serves Denio and the project area. They have indicated a willingness to upgrade the service to meet GPMI operating needs.

3.2.17 Recreation

Nearby parks and recreation opportunities include the Pine Forest Recreation Area and Bog Hot Creek. The Ashdown mine area is not often used for public recreation, although some hunting does occur in the Vicksburg area and to the south.

3.2.18 Visual Resources

The BLM initiated visual resource management (VRM) during planning processes to manage the quality of the landscape and minimize potential impacts to visual resources resulting from

development activities. In determining VRM class designations, the inventory process considers the scenic value of the landscape, viewer sensitivity to the scenery, and the distance of the viewer to the subject landscape. These management classes identify various permissible levels of landscape alteration, while protecting the overall visual quality of the region. Management classes are divided into four levels (Classes I to IV) with Class I designated as most protective of the visual resources. The objective of these classes vary from very limited management activity that allows major landscape modifications.

The Proposed Action is located in a VRM Class IV area (BLM 1981). The objective of Class IV management is to provide for management activities that require major modifications of the existing character. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. Every attempt, however, should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic landscape elements (BLM, 1986).

The landscape of the proposed project, as viewed from the county road west of the mine, consists of relatively flat foreground of the valley floor dominated by vegetation consisting of yellow, tans, greens and browns. In the mid-ground there is a dominant horizontal line marking the base of the range front. The horizontal line marks both an abrupt change in vegetation type and in topography. This change is also marked by a color change in vegetation to light and dark greens. The dominant feature of the landscape is the mountainous background that rises from the valley floor at the 4400 foot elevation to about 7000 feet. The mid slopes of the mountain range have strong diagonal features. The vegetation is predominately a light to dark green sagebrush community, which is smooth continuous throughout the project area. The pre-existing exploration roads are strongly horizontal and contrast in form and color with the naturally occurring diagonal features.

3.2.19 Public Safety

The mine is situated in an isolated area. One person lives approximately two miles west of the mine at the mill site, and leases the mill site to GPMI. Mining operations will take place underground with limited surface operations in the canyon.

3.2.20 Right-of-Way

The Proposed Action involves four existing right-of-ways (R/W). These are as follows:

Federal Land Policy and Management Act (FLPMA) R/W N-89568 is authorized to Claude Edward Morris for an existing access road from Humboldt County's Alder Creek Road, Road # 240, which intersects with the SE corner of his property. This provides for transportation to his house and a ground water well. The road is located within the mine's P of O boundary. GPMI would use the same road to access Mr. Morris' property where the mill site would be located. GPMI would not be required to obtain a FLPMA R/W since the road is within the P of O boundary. The existing road is 20 feet wide. In the event a wider footprint is required for the vehicular use associated with the mining activities, the road would be widened to 40 feet. The

approval for construction would be based on the results of cultural inventories and migratory bird inventories. At the mines termination of the road's use, Mr. Morris could either amend his FLPMA R/W to include the additional width, or the mine would be responsible for reclaiming the additional width in accordance with "BLM Manual 9113".

A second R/W involves a powerline service. The Morris property is provided electricity by Harney Electric Cooperative by FLPMA R/W N-80759. The R/W is issued to Harney Electric Cooperative. The electric company is responsible for all stipulations and related mitigation. GPMI would be supplied power on this same line. Should a need for a modification to the R/W be required, Harney Electric Cooperative would make application to the BLM. The processing would be through a separate NEPA document.

The third existing FLPMA R/W N-35558 is for the powerline to the mine site. It is issued to Win-Eldrich Gold, Inc., the company being responsible for the granted stipulations, mitigation, and amendments. The fourth existing FLPMA R/W N-60463 is for a buried telephone cable to Ashdown Mine. It is issued to Oregon Idaho Utilities, Inc., the company being responsible for the granted stipulations, mitigation, and amendments.

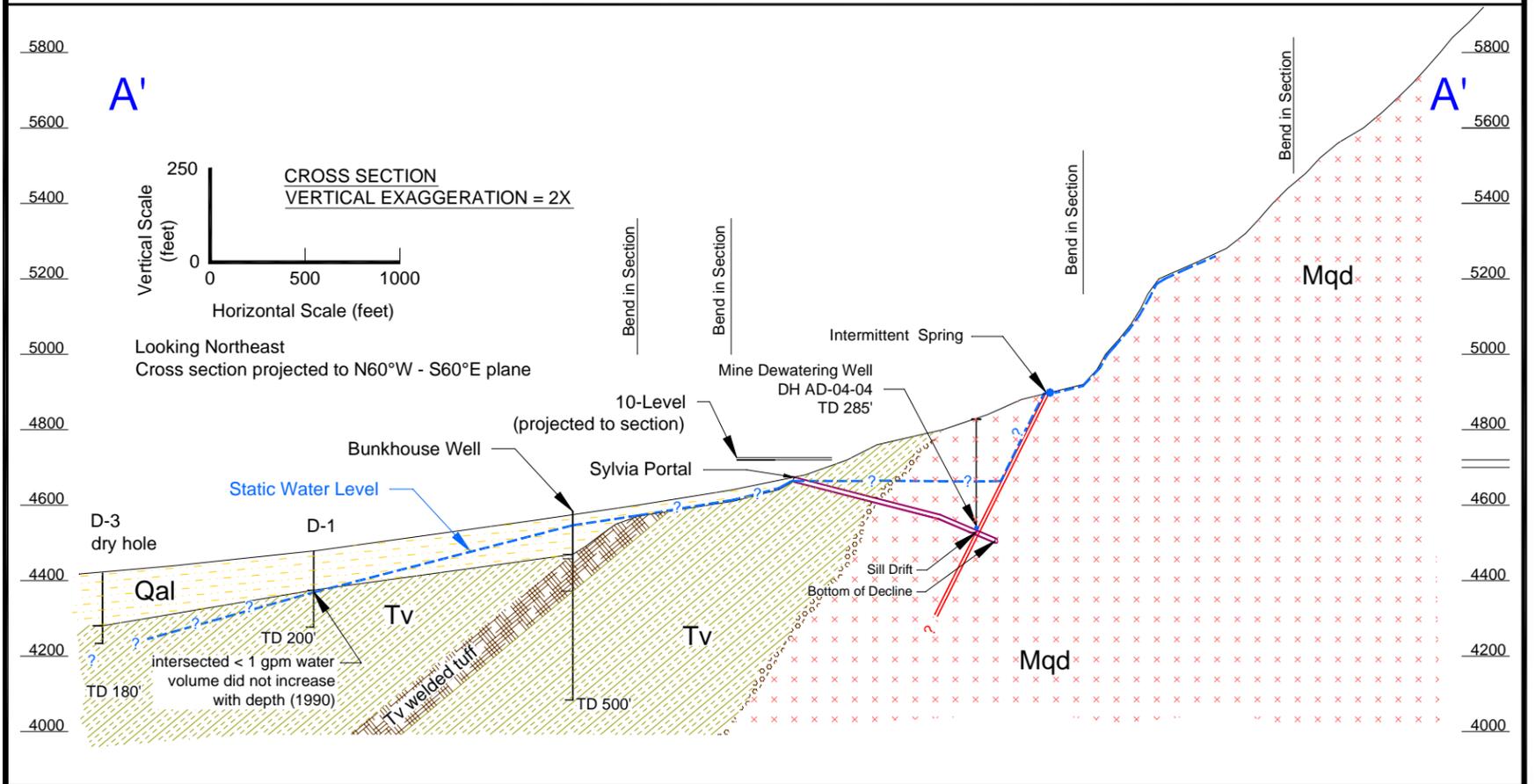
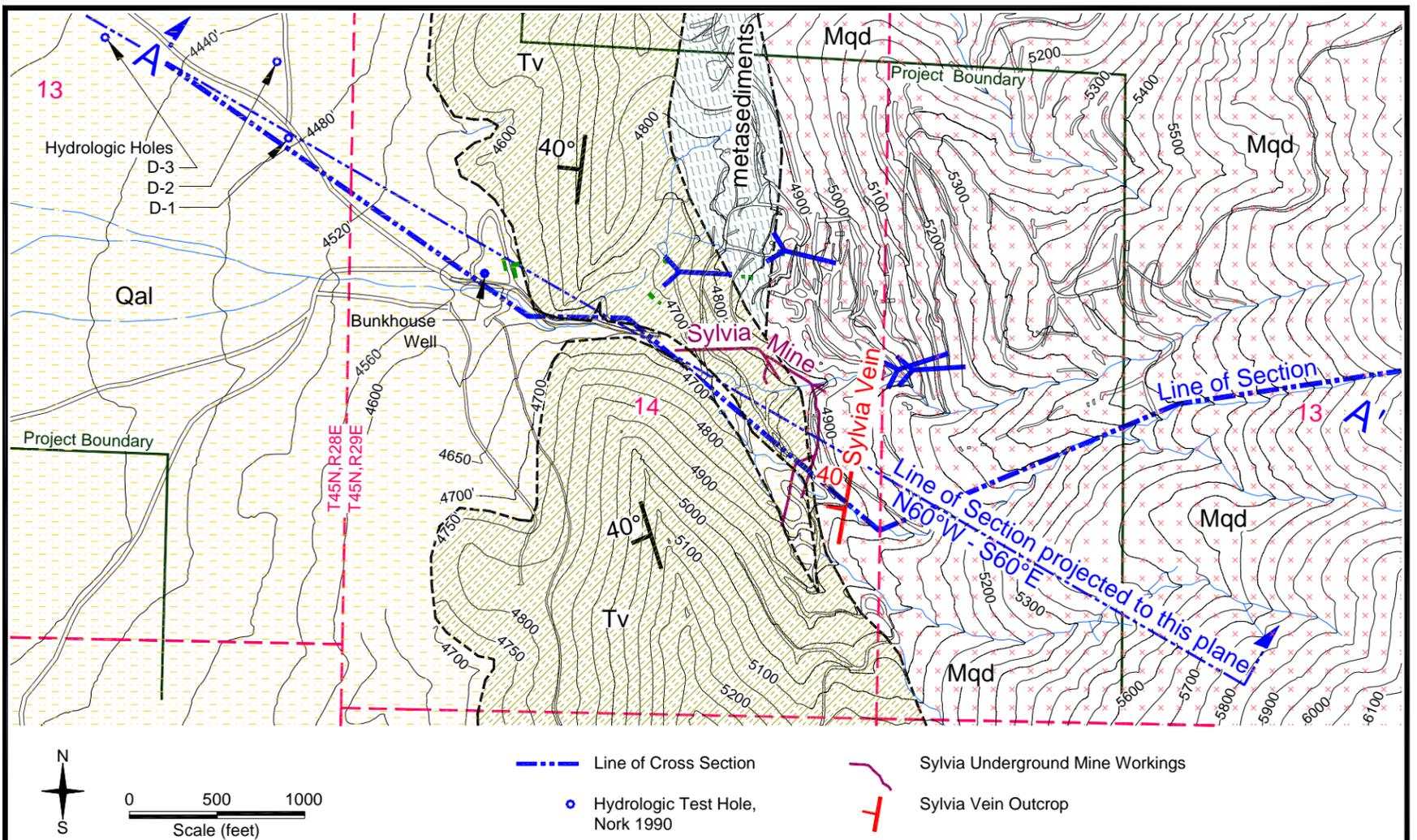
Typically, a power-line R/W is approximately 20 feet wide, and would lie within the road disturbance or adjacent to the road corridor. The engineering requirements for the road and power line construction activities are addressed in BLM Road Manual 9113. The R/W topography in the project area is considered good for road building having no ephemeral washes.

3.2.21 Geology and Minerals

Regional geology is composed of the Permian Happy Creek Group, a sequence of intermediate to basic volcanic rocks, and Triassic and Jurassic age sedimentary rocks, which have been intruded by Cretaceous granodiorite. The sedimentary rocks have undergone low-grade thermal metamorphism to schist, hornfels and marble which are well foliated and compositionally layered. Tertiary volcanics ranging in composition from basalt to rhyolite locally overlie the Mesozoic rocks. Following Tertiary volcanism, the Pine Forest Range was uplifted by Basin and Range faulting to its present position as a west-dipping horst block.

The geology at the Ashdown Project is characterized by a core of Cretaceous quartz diorite, which hosts both the molybdenite and the gold deposits in quartz veins (Figure 9). The veins generally strike north-south and dip moderately west. Overlying the quartz diorite is a thick section of Tertiary volcanic ash flows and volcanic sediments, which strike north-south and dip moderately west forming the prominent hogback along the range front. The volcanic section is covered with alluvial fan deposits composed of the eroded regional bedrock.

Seismic records compiled since 1980 indicate that no earthquakes have occurred within the project area or within a ten mile radius of the mine site (National Earthquake Information Center, 2002). The project area is located within a Zone IV seismic sensitivity area with a maximum possible earthquake of 7.5 or greater on the Richter Scale.



EXPLANATION			
	Qal: Quaternary alluvium		Sylvia Vein
	Tv: Tertiary volcanic tuffs Tertiary welded tuff, brittle, fractured Tertiary volcanic tuffs		Static Water Level
	basal conglomerate (not mapped on surface)		Sylvia Mine
	Mqd: Mesozoic quartz diorite		

Ashdown Project
Humboldt County, NV

GEOLOGY

Golden Phoenix Minerals, Inc.

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3.2.22 Waste Rock Characterization and Management

Geochemistry of ore and waste rock at the mine site was investigated by GPMI during 2004 and 2005. The following test work was conducted to characterize ore, waste rock, and backfill materials:

- Total Metals Analysis
- Acid Base Accounting (ABA); and
- Nevada Meteoric Water Mobility (NMWM) Procedure

This included test work to predict the effects of short-term exposure of ore and waste rock to precipitation and long-term leachate quality from mine materials. Total sulfur values for all the samples ranged from below detection (0.01 percent) to 0.30 percent, averaging 0.1 percent (see Summary Tables below and Falk and Colwell 2005). Sulfate sulfur, which is not acid forming, is the dominant form of sulfur. The highest concentration measured was only 0.1 percent. The average total sulfur content in the waste rock samples was 0.03 percent.

Additional testwork results involving six composite core samples taken laterally and vertically on the hanging wall and footwall sides of the vein, which were deemed to represent the types of waste rock that will be generated near the vein (Figures 5 and 6), are shown in Table 8 (Falk and Colwell, 2005).

Table 8 Acid Base Accounting Data for Quartz Diorite Composite Samples Taken Both Sides of Ore Vein							
Waste Characteristic	Hanging Wall: weakly mineralized massive quartz & silicified quartz diorite			Footwall: argillized to propylitically altered quartz diorite.			
Percent of unit that will be placed in the waste rock dump	< 1%			< 2%			
Table ID Number	7	8	9	10	11	12	Avg
AGP Sulfide LE tons/1000 tons	0.62	1.3	5.3	5.6	0.15	0.15	2.18
AGP Sulfide Total S tons/1000 tons	0.62	5.6	7.8	9.4	4.1	<0.3	<4.64
NP (Neutralization Potential) tons/1000 tons	9	21	4	24	41	48	24.5
Sulfur, Sulfate %	<0.01	0.14	0.08	0.12	0.13	<0.1	<0.10
Sulfur, Sulfide %	0.02	0.04	0.17	0.18	<0.01	<0.1	<0.09
Sulfur, Total %	0.02	0.18	0.25	0.3	0.13	<0.1	<0.16
NNP (NP-AP=NNP) Net Neutralization Potential	8.38	19.7	-1.3	18.4	40	47	21.97
NP/AGP using Sulfide LE	14.5	16.2	0.75	4.3	1366	1600	500.29
NP/AGP using Sulfide Total S	14.5	3.75	0.51	2.5	10	1600	273.71

Samples 7, 8 and 9 listed in Table 8 were taken from the hanging wall portion of the vein which consists primarily of massively silicified quartz diorite and quartz with trace to minor amounts of chalcopyrite, iron oxides, copper carbonate (gangue minerals) and molybdenum. Samples 7 and 8 from the hanging wall were acid neutralizing with ratios of 14.5:1 and 3.8:1, respectively. Sample 9 was acid generating by a ratio of 1.8:1. The saturated paste in Sample 9 was weakly acidic with a pH of 6.42.

These three very low grade vein samples results indicate acid generation potential increases deeper in the Sylvia vein system. The Sylvia vein is completely oxidized at surface with no visible sulfides. Deeper in the deposit, molybdenite (MoS_2) occurs with minor iron oxides and copper carbonates (Samples 7 and 8). At greater depths, the copper and iron are contained in chalcopyrite (Sample 9). The oxidation products are generally located along the upper margins of the gangue mineralization, thinning as depth from the surface increases. Metal concentrations in the MWMP testwork, which was performed concurrently, were not significantly elevated. The results indicated low metals mobility.

The interval sampled in the hanging wall varied from 19 to 30 feet depending on the thickness of the silicification. AGNP results indicate the hanging wall varies from neutralizing to acid generating, which is in agreement with the macroscopically observed scattered blebs of molybdenite, chalcopyrite, pyrite, iron oxides and copper carbonates. Zones of the hanging wall also show some oxidation with limonite and minor copper carbonates. Hanging wall ore samples collected along strike length averaged an NP of 11.3.

The hanging wall is not ore and mining methods are designed to prevent it from caving into the stopes and diluting the ore. In the event that some hanging wall material would cave, it would be removed with the ore, processed at the mill, and ultimately disposed of in the tailings pond. Metals reported in the MWMP results are generally very low. The massive silicification and lack of clay in the hanging wall will provide good conditions for ground control.

The results of the footwall (waste) samples are shown in Table 8 as Samples 10, 11 and 12. The footwall in the vicinity of the vein was determined to be generally fresh to weakly propylitized with chloritization of the biotite. The quartz diorite material is argilized near the contact with the quartz vein with magnetite destruction, minor increased clay, and isolated subeuhedral pyrite observed within five feet of the vein. The material then grades quickly into weakly propylitized quartz diorite. Calcite is present primarily in clay-filled fractures and as disseminated fine crystals.

The footwall intervals sampled varied from 20 to 27 feet. AGNP results indicate the footwall is neutralizing to strongly neutralizing, which is in agreement with the observed scattered flecks of calcite and calcareous clays in thin fractures and rare pyrite. This neutralizing value averaged 59.2 to 1. Metals reported in the MWMP results are low.

These samples exhibit high net neutralization potential, ranging from a low of 18.4 to a high of 48 and averaging 35. Arsenic was slightly elevated in the MWMP composite sample at 0.046 mg/l. All other metals and sulfate were low.

Sample 1 (Table 9) is a composite sample of the Tertiary volcanic section taken in the Level 10 adit. This sample is considered representative of the volcanic section in the immediate area of the Sylvia Mine. The material is slightly elevated in arsenic and sulfate. It would be used as a partial growth medium in reclamation activities (Falk and Colwell, 2005).

Samples 2, 4 and 5 are composites taken along the Sylvia waste dump. The primary rock type is quartz diorite similar to footwall Samples 10, 11 and 12 in Table 8. It is the bedrock host for the molybdenum deposit. No metals of concern were elevated in these samples. The average neutralization potential is greater than the acid generating potential by more than 4:1. Sample 5 is also quartz diorite from the 10-Level, and consists of similar geochemistry to the other waste rock samples analyzed.

Table 9 Acid Base Accounting Data for Additional Representative Samples Taken From Various Rock Units						
Waste Characteristic	Tertiary volcanic tuffs	Quartz Diorite: (samples from existing waste dump and inside 10-Level adit)			Ore Vein	
Percent of unit that will be placed in the waste rock dump	10%	89%			0%	
Table ID Number	1	2	4	5	6	Avg
AGP Sulfide LE tons/1000 tons	<0.3	<0.30	0.309	<0.3	47	15.04
AGP Sulfide Total S tons/1000 tons	<0.3	2.2	5.50	<0.3	56	12.86
NP (Neutralization Potential) tons/1000 tons	7	20	23.38	17	12	13.23
Sulfur, Sulfate %	<0.01	0.007	0.133	<0.01	0.30	0.92
Sulfur, Sulfide %	<0.01	<0.01		<0.01	1.50	0.306
Sulfur, Total %	<0.01	0.07		<0.01	1.80	.378
NNP (NP-AP=NNP) Net Neutralization Potential	6.7	19.7	23.07	16.7	-35	6.234
NP/AGP using Sulfide LE	23.3	66.6	75.66	56.6	0.25	44.48
NP/AGP using Sulfide Total S	23.3	9.09	4.25	56.6	0.21	18.69

Sample 6 is a composite grab sample of high-grade molybdenite area from the vein. It was stockpiled on the waste rock site in 1983. This high-grade molybdenite sample is representative of the entire 190 feet of Sill drift driven through the high-grade ore chute, and is the ore material to be processed off site at the Morris Mill. It represents the highest-grade molybdenite that GPMI expects to encounter in the mine. The acid generating to neutralization potential of the ore is 4:7:1. However, the saturated paste analyzed during the AGNP test procedure had a pH of 7.22. The MWMP solution extract had a pH of 6.5. Molybdenum concentrations were only slightly elevated, even though the sample represents high-grade ore. This further demonstrates that the molybdenite is very slow to oxidize. All this material would be processed by flotation at the Morris Mill with about 90 percent of the sulfides being removed in the concentrate. All the

flotation tailings would be placed in a lined zero-discharge tailings pond. The concentrate would be bagged and shipped offsite for final treatment to recover the molybdenum.

Backfill sand materials from the surface were also tested by GPMI in the 2004/2005 program. The samples consisted of local waste rock that graded fine enough to be slurried into mining stopes. It was also very low clay content and free-draining. A third physical property making it potentially feasible for use as a backfill was that it compacted tightly, and could be used as a working surface for mining or for stability and support. Additional samples were also taken from the BLM materials pit on the low bench above the bottom of the valley in the SE ¼, Section 15 (see Figure 2). These samples were comprised primarily of decomposed volcanic sand with lesser pebbles. The acid neutralization to acid generation potential was measured at 170:1. The material exhibited 51 tons of neutralization potential per 1,000 tons of material, and the arsenic concentration in the MWMP extract solution was above the drinking water standard.

Overall, geochemical characterization tests for non-ore material demonstrated that selective handling procedures would not be required for the Sylvia Ashdown mining operation. None of the waste rock samples were potentially acid-generating. Likewise, MWMP testing showed that stormwater runoff and drainage from non-ore rock would meet applicable water quality criteria.

In summary, the tests for all of the ore samples showed generally low acid-generating potential and limited metals mobility. Two types of potential acid generating rock types occur. These are: 1) the molybdenite ore that will be removed and processed; and 2) the deeper portion of the silicified hanging wall that is well below the water table where oxidation would be limited when the mine is flooded. Metals reported in the MWMP were low. The neutralizing value in typical footwall or waste material averaged 59.2:1.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 AIR QUALITY

4.1.1 Proposed Action

The Proposed Action would cause a short-term increase in fugitive dust and gaseous emissions in the local area due to the following activities: mine development; increased vehicle travel; ore, waste rock, and sandfill hauling and handling; ore crushing; underground mining; construction and operation of the mill facility; and exploration and reclamation activities.

Sand and gravel excavation and sorting at the BLM/County borrow area would cause short-term increases in dust. Exploration drilling would also slightly increase particulate concentrations. This dust would be minor and localized, and limited by road watering and application of chemical dust suppression surfactants. Dust from surface ore haulage and waste rock storage would be controlled by watering. The haulage trucks would be treated with water sprays, prior to haulage to the respective “dump points”. Likewise, the crushing facilities would be equipped with water sprays. Fuel combustion emissions and rock dust from underground ventilation and mining would have a slight and localized effect on air quality during the life of the mine. This is restricted by Mine Safety and Health Administration (MSHA), and State of Nevada and the National Ambient Standards. Particulate (dust) levels would be influenced by wind conditions with highest levels occurring during wind storms. Once reclamation was completed, pollution concentrations would return to near pre-mining levels.

Modeling of total PM₁₀ emissions for the project showed they are less than 25 tons per year (tpy) using the SCREEN3 Model. At an average estimated distance to the nearest property fence line, the maximum 24-hour PM₁₀ concentration was predicted at 124 ug/m³, and the annual average was 25 ug/m³ (TRC, 2004). When added to generic rural PM₁₀ background levels considered representative of the Sylvia Ashdown site, these predictions fell well below the Nevada and National Ambient Standards for PM₁₀. GPMI has applied to NDEP-Bureau of Air Pollution Control (BAPC) for a Class II Operating Permit for the mill and a Class I Operating Permit for the remainder of the operations which includes the mine, roads, and gravel pit. The availability of line power to both the mine and mill further limits gaseous pollutants such as sulfur dioxide (SO₂), oxides of nitrogen (NO_x), carbon monoxide (CO₂), and volatile organic compounds (VOC).

4.1.2 No Action

The No-Action alternative would also result in a short-term increase in dust during travel to and from the site for the purpose of obtaining the 1000 ton metallurgical test sample. Some limited short-term generation of dust associated with completion of the remaining reclamation at the site, as required under the Notice of Intent, would also occur. Dust control is required by MSHA, but is not required by the BLM or the State of Nevada under the projected small tonnage levels for these short-term activities.

4.2 CULTURAL RESOURCES

4.2.1 Proposed Action

Based on the results of the cultural resource inventory, recommendations regarding site eligibility to the NRHP were made for the retention of historic integrity and other required historic preservation. These recommendations were developed based on the field evaluation using experience and professional judgment. Sites that were found to not retain integrity and/or meet these criteria are recommended NOT eligible to the NRHP. Those sites which are found to retain integrity and meet one or more of the four criteria set forth in 36 CFR 60.4 were recommended ELIGIBLE to the NRHP.

The original scope of the initial “open pit” Ashdown Mine Project included an irregularly shaped block encompassing 271.5 acres. This mine plan was not considered economically feasible by GPMI, and would have resulted in significantly greater environmental impacts.

The current revised mine plan proposal and area of potential effects (APE) would effect about 30 acres of land lying within areas disturbed by mining over the last 20 years. This includes about 21 acres of BLM land and 9 acres of fee land disturbance. Outside of the current APE, no direct impacts were identified for any single cultural resource property or feature. However, general recommendations for avoidance mitigation were provided for each recommended eligible site and contributing feature identified during the larger field inventory.

Development under this revised mine plan, with a significantly smaller area of disturbance than originally proposed when the cultural survey was initiated, includes development of a single underground mine entered through an existing mine opening (Sylvania portal). GPMI has committed to avoidance in the current mining proposal. No new roads, mills or open pits are proposed as part of the revised mine plan. No eligible historic sites would be impacted by the rapid infiltration area near the approved land application site. The following are possible treatment measures to mitigate potential adverse effects to contributing features of the historic Ashdown Mine site (CrNV-21-311) identified within the adjusted project APE.

Ashdown Mine Site:

Feature 3, a contributing element that could be affected by minor impacts to the existing road, consists of a rock-lined dugout with an associated historic artifact concentration and trash scatter. The trash scatter was partially disturbed by pre-1981 road construction and exploration drilling. Under the proposed action, minor improvements to the existing road to access the ventilation/emergency escapeway can be completed without additional disturbance of the feature. It has been demonstrated that the improvements can be completed without additional disturbance in the future. Improvements will consist of building diversion ditches to control runoff, and a low safety berm as required by MSHA.

Feature Areas 6 and 8 are located within the present project APE. Both Feature Areas 6 and 8 have been recommended as non-contributing elements to the general eligibility of the historic

Ashdown Mine site. Archival research indicates that Feature Area 6 does not date to the historic period. Feature Area 8, the old mill site, has been highly disturbed in the past by fire, demolition, and recent activities. This Feature Area has been impacted to the point that it no longer retains integrity. No adverse affect to contributing elements or eligible historic resources are anticipated by the proposed mining project. Consultation under Section 106 of the National Historic Preservation Act is in progress in accordance with the existing statewide protocol agreement between BLM and Nevada State Historic Preservation Office (SHPO)

4.2.2 No-Action Alternative

If undocumented cultural or paleontological resources are discovered during the proposed bulk sampling program, the resources shall be left intact and immediately brought to the attention of the authorized BLM officer. Cultural resources can include, but are not limited to historic mine workings, historic trash dump, and prehistoric artifacts and fossils.

If additional cultural resources are identified during project activities, the Final P of O would require cultural resource protection and possible work stoppages until the site can be evaluated, and appropriate resource protection measures developed. These mitigation activities would be implemented per the BLM and State Historic Preservation Office.

4.3 NOXIOUS WEEDS

4.3.1 Proposed Action

Scotch Thistle (*Onopordum acanthium*) was observed in one small area near the mine. New surface disturbance from the Proposed Action would increase the potential for and promote the establishment and spread of invasive, nonnative, and noxious weeds. Noxious weeds could be brought to the area from equipment transported to the mine site. Also, noxious weeds could be spread from straw bails used as erosion control and filtering devices. GPMI would employ chemical treatment on the isolated area at the mine site under an approved pesticide use permit. These impacts would be very limited based on implementation of concurrent reclamation efforts; operator controls; removal of invasive, nonnative, and noxious weeds on reclaimed areas; and washing of vehicles prior to entering the project area. Final reclamation activities would avoid invasive noxious weeds. Only certified weed-free straw or hay would be used on site for these activities. GPMI would develop a noxious weed monitoring program and implement a control program in the event more noxious weeds are discovered, pursuant to NRS Chapter 555.05.

4.3.2 No-Action Alternative

Limited short-term risk of noxious weed infestations would occur if the No-Action Alternative is selected. GPMI would be responsible for controlling all noxious weeds and other undesirable invading plant species in the project area until the revegetation activities have been determined to be successful by the BLM authorized officer. No long term impacts would occur, as the activities approved under the NOI are limited and subject to full reclamation.

4.4 MIGRATORY BIRDS

4.4.1 Proposed Action

While the absence of migratory and passerine bird life was notable, undoubtedly the time of year of the survey had some effect on these observations. The dry sagebrush habitat in and around the study area does not provide preferred habitat for most migratory species. However, some migratory birds use the area. The absence of natural water bodies considerably limits this use. Any widening of roadways to and from the site will consider mitigation for migratory birds and similar seasonal limitations, as discussed above. Therefore, no direct impacts are anticipated. In the event new land clearing activities are necessary on BLM land, a qualified biologist would survey the area prior to this site work between April 15 and July 15. If active nests are identified, appropriate buffers or setbacks would be established. These buffers would be maintained until the nests are no longer active.

Impacts to migratory birds would be minimized by the environmental protection measures included in the Proposed Action, such as limiting clearing activities near active nests, wildlife fencing around the tailings pond, implementation of a Spill Prevention and Response Plan, and final reclamation. Mitigation measures are described in more detail earlier in Section 2.3.5 of this document.

4.4.2 No Action Alternative

The No-Action alternative would affect substantially less acreage for a much shorter time duration. Planned reclamation would mitigate this limited loss of habitat for wildlife, including habitat used by migratory birds moving through the area.

4.5 THREATENED & ENDANGERED, CANDIDATE & SPECIAL STATUS SPECIES (WILDLIFE & PLANTS)

4.5.1 Proposed Action

The project area has been surveyed to determine the presence or absence of species of concern. While none of the Special Status Species of wildlife or plant species were observed during the surveys, the general area does support potential bat habitat, and historically bats have been periodically observed by the local miners. No mining or exploration activities would occur during the winter season (October 1 through March 31) within 200 feet of the 8 Level portal.

4.5.2 No Action Alternative

No impacts would be expected to bats potentially hibernating at the Level 8 Adit due to limited mining activity (approximately 1000 tons of ore) associated with the bulk sampling program. Mining is short-term, and would be completed by spring, 2006.

4.6 NATIVE AMERICAN RELIGIOUS CONCERNS

4.6.1 Proposed Action

Based on the limited area and temporary nature of the proposed mining operation, no impacts to Native American resources or values are anticipated as a result of the project. Notice of availability for the Initial Plan of Operations and this EA were sent to involved Tribal authorities. Additional contacts may result from the public comment period.

Pursuant 43 CFR 10.4(g), the holder of an authorization to mine must notify the BLM authorized officer by telephone and with written confirmation immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), the mining operator must stop activities in the immediate vicinity of the discovery and protect it from activities for 30 days or until notified to proceed by the authorized officer.

4.6.2 No-Action Alternative

No consultation is required for this Alternative. No Native American concerns have been identified at this time.

4.7 HAZARDOUS MATERIALS/SOLID WASTES

4.7.1 Proposed Action

The potential effects to the environment at the site caused by hazardous chemicals or materials is related to possible accidental releases during transport to the site, during use or storage onsite. The management and disposal of hazardous and non-hazardous wastes would involve disposal of all domestic solid waste, scrap lumber and metal at the Denio drop station, or hauled to the approved landfill. Toxic materials would be disposed in accordance with applicable State and Federal regulations. No hazardous materials would be buried at the mine site. The liner material and berm around the fuel storage tank at the mine would be tested for petroleum residue at cessation of mining, and disposed of according to applicable regulations. All underground piping would be capped at the completion of mining. The portable toilet would be removed from the site. Following these measures and the Transportation Spill Prevention and Emergency Resource Plan (Appendix 4) only minor impacts would result.

The effects of a potential release of hazardous materials at the mill site would depend on the substance, quantity, timing, and location of the release. Such an event could involve a spill of petroleum product, or a process solution. Potential ground water contamination would be the primary concern. A review of related transportation risk analysis information shows that the likelihood for a fuel transport spill is in the range of 0.00000012 accidents per mile traveled. The distance from Winnemucca, the most likely supply depot, is about 100 miles. Estimating that there will likely be about 1050 fuel truck deliveries over the five year LOM, the estimated number of accidents involving a release is about 0.018.

A similar, but much more remote likelihood exists for a process chemicals spill in transport. Primary process chemicals are: diesel fuel, alcohol, hydrated lime, activated carbon, and flocculants. The mining and milling operation size (100 tons per day) further limits the extent and risk associated with accidental spills. GPMI would follow established procedures in their Transportation and Spill Prevention Emergency Response Plan (Appendix 4), and all spills of petroleum products or hazardous substances will be cleaned up and disposed of in accordance with applicable laws. All hazardous substances would be handled as recommended in the manufacturer's MSDS. Design features described in Water Pollution Control Permit (WPCP) NEV 2005105 would protect waters of the state.

4.7.2 No-Action Alternative

This down-scaled, short-term bulk sampling program would not have significant impacts on the natural environment in terms of hazardous or non-hazardous solid and liquid wastes. They would be managed as described above for the Proposed Action, including the requirements of WPCP NEV 2005105 and related monitoring and reporting.

4.8 WATER RESOURCES

4.8.1 Surface Water

4.8.1.1 Proposed Action

Surface water impacts associated with the Proposed Action are very limited due to the absence of perennial water courses in the project area. Most likely causes of potential surface water degradation would be sedimentation from construction activities or accidental spills to surface water. Total disturbance on BLM-administered land is approximately 21.28 acres. Most of this is pre-1981 disturbance. Only 2.33 acres is new disturbance. The project components involved in the proposed Sylvia Mine, which could cause short-term impacts on surface water resources include: surface disturbance from road building, construction of the waste rock storage site, mill construction and operation, installation of the land application rapid filtration basins, construction of the BLM-Humboldt County gravel pit for backfill, and construction of the ancillary support facilities to the mine. Environmental management activities and mitigation described in detail later in this document are expected to limit these impacts. These include: 1) implementation of a Stormwater Pollution Prevention Plan (SWPPP) during construction, 2) installation of an oil and grease separator to be located at the mobile truck wash facility, 3) long-term BMP to limit erosion and sedimentation, and 4) concurrent and end-of-project reclamation to re-establish natural vegetative conditions. The Proposed Action would be expected to have minimal impacts on the local surface water hydrology and water quality.

4.8.1.2 No-Action Alternative

The No Action Alternative would have only limited impacts on the surface water resources in the project area, primarily due to the short duration of the test sampling program (i.e., 6 months versus 5 years for the mine). It would also affect less new acres of disturbance than the Proposed

Action (about 15%). Water management activities would be similar to those implemented for the Proposed Action, and are described later in Chapter 6 of this EA.

4.8.2 Ground Water

4.8.2.1 *Proposed Action*

Impacts to the ground water near the mill would be from the use of 20 acre-feet/year of water for processing. Claude E. Morris requested a temporary change of use and point of diversion under permit number 31347 on behalf of GPMI. On January 31, 2006 the State Engineer granted the temporary permit No. 73317-T for a period of one year. GPMI intends to apply for water rights for the mill in the near future. Recharge from the mountain range to the east and south will compensate for the ground water loss due to the ore processing. The Nevada Division of Water Resources estimates the perennial yield of Continental Lake Valley to be 11,000 acre-feet annually with approximately 7,726 acre-feet currently allocated, primarily for irrigation.

Short term impacts to the water table are expected at the Sylvia mine due to dewatering. Approximately two-thirds of the mining will be below the water table and will be dewatered at the base of the mine workings, which is currently at an elevation of 4,496 feet, and may be extended down to an elevation of 4,396 feet. Since the ground water is nearly all fracture and fault controlled, the flow of water will be largely from the fault which hosts the Sylvia vein. Inflows in the current mine are controlled by dewatering at the rate of 30 gpm and are not expected to significantly increase. The dewatering rate may vary from 15 to 40 gpm over the life of the mine due to variability in annual recharge and the drainage of connected fracture sets. It is possible that this rate may decrease with time as the fracture sets become dewatered. As the fractures are eventually dewatered, the pumping rate will approach the natural recharge rate. A substantial portion of the mine dewatering will be placed back into the water table further down gradient at the infiltration ponds. The amount of water loss due to road watering and evaporation is expected to be about 3.0 acre-feet per year.

Given the amount of unsaturated alluvium that is available and the relatively low (30 gpm) discharge rate, no impacts are anticipated from the infiltration of the dewatering water. GPMI will conduct monitoring (monitoring wells and visual surface inspection) to determine if excessive ground water mounding is occurring. GPMI will also conduct quarterly sampling of the discharge water to insure that degradation of the down gradient ground water does not occur.

The ground water chemistry at the mine could be impacted from the rock-water interactions while mining, and/or contaminated from petroleum products used by the underground equipment. Short-term impacts on ground water in the mine are likely to include increased total suspended solids (TSS), residual oils and greases, and possibly TDS. GPMI may add flocculent to the underground dewatering sump to reduce total suspended solids (TSS) prior to final infiltration at the rapid infiltration basins. This would be determined by monitoring of TSS in the discharge water from the mine. The underground sump would also be equipped with an oil separator to collect residual oils and grease from the mining equipment. GPMI has proposed to pump the ground water in the mine to the 60,000 gallon surface tank where additional treatments

and monitoring would be applied if necessary prior to reuse or disposal in the rapid infiltration basins.

- Water will be pumped from the mine in stages through a series of sumps, then to a 60,000 gallon tank on the surface where it will be used for surface dust control, recycled as sandfill medium, or piped to the flotation mill with any remaining water directed to rapid infiltration basins. The series of sumps and the water tank will allow suspended solids to settle out by gravity. If necessary, a flocculant could be to further reduce the suspended solids. This would be determined by monitoring of TSS in the discharge water from the mine.
- The underground pumping system would also be equipped with an oil separator to collect residual oils and grease from the mining equipment before it is used for dust control, used at the mill, or sent to the reinfiltration basins.
- The rapid infiltration basins would be designed in accordance with NDEP requirements as part of the Water Pollution Control Plan. These RIB facilities would be operated according to the provisions of an Operation and Maintenance Manual that addresses minimum scheduling wet/dry cycling, monitoring, reporting, and winter operations. This manual would be drafted by GPMI, and submitted to NDEP-BMRR in advance of their use. Prior to reclamation, the RIB will be tested for hydrocarbons and any contaminated material will be placed in containment at the mill.
- Water samples would be taken in accordance with NDEP requirements. GPMI currently monitors pH and conductivity daily and submits samples for analysis monthly.
- The series of sumps in the staged pumping system and the 60,000 gallon surface water tank will provide multiple locations for additional treatments if necessary.

Ground water chemistry could be impacted from oxidation of sulfides during mining, stope sand-fill material interactions, or by the increased exposure of the mineralized area to oxygen during mining and the subsequent period of water table recovery. The amount of sulfide oxidation that occurs is not expected to change the ground water chemistry beyond natural variability because the area to be mined has been previously exposed to air along a strike length of about 400 feet during mining in the late 1970's and early 80's.

The proposed action would expose 2-3 times as much of the vein as is currently exposed. The proposed action would also allow oxidation (air) to the sulfides for about the same amount of time as it was exposed previously. The water quality has been sampled and analyzed over 17 months of recent dewatering and it has remained constant throughout the period. All the samples (Appendix 3) meet the primary drinking water standards and indicate that the current proposed mining will not degrade the ground water quality. Also, as explained in detail in sections 3.2.22 and 4.23 (Waste Rock Characterization and Management), the wall rocks of the stope will have a neutralizing affect on the ground water and will not significantly change the chemistry of the ground water.

Four types of backfill are proposed as possibilities to be used in the mine. They include: sand/gravel source from the nearby Morris Ranch, BLM gravel pit, crushed footwall quartz diorite waste rock, or purchased tested material from an off-site source. Minor cement (<15%) may be added to the top of each fill layer to keep the slushers from digging out the backfill with the ore. The backfill material would contain significantly less sulfides than the original vein material. Initial testing of the material from the Morris Ranch, the BLM gravel pit, and the footwall quartz diorite show these materials to be strongly neutralizing. The backfill may also have the added benefit of cement, which would give additional buffering capacity to the rocks. Meteoric Water Mobility tests of the material from the Morris Ranch and the BLM gravel pit indicate drinking water standards, except for slightly elevated arsenic. If during mining the quarterly water analysis indicates that the backfill material is contributing to one or more of the elements rising above drinking water standards then the material will be discontinued and a different backfill material will be used for the remainder of the operation.

4.8.2.2 *No-Action Alternative*

Under this proposal, a 1000 ton bulk sample would be extracted for testing purpose. The mining method would be identical to the Proposed Action, only smaller scale. The underground would continue to be dewatered. Short-term increases in TSS, residual oils and greases, and possibly TDS could be expected, as described earlier for the Proposed Action. Long-term mine drainage would likely flow to the surface and infiltrate into the ground below where the current drainage exits the mine portal. Historically, this has been the case with no flowing water occurring after July. Adaptive management methods discussed for the Proposed Action would be employed to reduce these short-term water quality impacts, which are expected to be minimal. About 3.46 acres of the historic mine waste dump would be recontoured and revegetated at closure. There are no plans to develop the underground water source under this option. No long-term water quality impacts are anticipated.

4.9 WILDERNESS

4.9.1 Proposed Action

The surface activities at the mine cannot be viewed from the Adler Creek and Blue Lakes Wilderness Study Areas (WSA). The two WSA's will be minimally impacted visually by the mill and the new traffic visible on the county road and haul road between the mine and mill. This is expected to involve a maximum 10-15 road trips per day. GPMI has proposed dust control measures, which are described in Chapter 6, in order to reduce or mitigate these impacts during the four to five year mine life. With the successful reclamation of roads and major facilities, visual and traffic impacts would be minor.

4.9.2 No Action Alternative

Impacts would be similar as the Proposed Action during the one year metallurgical test sample program, although fewer dust control measures would be required due to fewer ore haul trips to the mill site.

4.10 VEGETATION

4.10.1 Proposed Action

The Proposed Action would result in clearing and the temporary loss of approximately three acres of new disturbance and removal of sagebrush-dominated vegetation on public lands. This is associated with road improvements, the construction of laydown areas, the waste rock storage site, and operations at the gravel pit (see Table 1, Total Areas of Disturbance). The mill site on private land has cleared about 9 acres of sparsely vegetated land near the Morris residence. Reclamation would be bonded for revegetation of all public land at cessation of mining. Reclamation would entail establishing self-perpetuating plant communities on disturbed land. Revegetation of the project area is expected to take between 3 and 5 years. This would be the timeframe from initiation of reclamation activities to completion and the final bond release.

4.10.2 No-Action Alternative

The No-Action alternative described in Section 2 of the EA would total about 18.95 acres of disturbance on BLM land and about 9 acres of new disturbance on private land (the same as the Proposed Action). Most of the previously disturbed acreage including about 3.46 acres at the historic waste rock storage site would be recontoured and revegetated. The BLM gravel pit would not have been disturbed, and would not need to be reclaimed under this alternative as no backfill is necessary. The mill site would be reclaimed under NDEP-BMP requirements.

4.11 SOILS

4.11.1 Proposed Action

Much of the project area has been disturbed by past mining and grazing activities. This is evidenced by eroded soils and wide invasion of cheatgrass. Construction of the mine and mill facilities would increase soil erosion over the short-term. This would involve both water and wind during construction, ore hauling, and transport of sand and gravel to the sandfill plant. These activities would be expected to have minimal effects on soil quality. Interim and long-term soil stabilization and revegetation programs described in the Reclamation Plan and later in Chapter 6 would be expected to largely mitigate these effects. The land application area will be re-seeded at cessation of its use. The overall Final Post-Mining Reclamation Contour Map is shown in Figure 10. This shows limited effects on local soils resources after mining has concluded and all reclamation activities have been implemented.

4.11.2 No-Action Alternative

Impacts to the soil resources in the project area would be further limited due to the reduced “project footprint” and additional reclamation to be conducted as part of the proposed test mining activities.

4.12 SPECIAL STATUS SPECIES

4.12.1 Proposed Action

No sensitive plant or mammal species were recorded in the project area during the field investigations. Therefore, impacts to either category are not anticipated as a result of construction or operation of the mine. Successful revegetation of the areas effected (about 32 acres) is expected to occur within three to five years after reclamation. Herbaceous plant cover would consist of sufficient diversity and density to substantially reduce the potential for soil erosion, and to provide forage for wildlife and livestock.

The short-term removal of this small acreage would not be expected to have any direct impacts on nesting or breeding area for birds. No breeding or nesting of sensitive species like sage grouse is currently known.

4.12.2 No-Action Alternative

No sensitive plant or animal species would be affected by the No-Action alternative.

4.13 WILDLIFE

4.13.1 Proposed Action

There is no fisheries/aquatic habitat in the Proposed Project area. Therefore, no impacts would be expected.

The proposed development would temporarily impact about 18.95 total acres of previously disturbed sagebrush dominant habitat, which includes about 6.16 acres of existing access and exploration roads. In total, 30.31 acres of combined existing and new disturbance would occur. This alteration or temporary habitat loss would result from construction activities and increased human presence. A reclamation bond is required to ensure that restoration of habitat would occur approximately 3 to 5 years after closure. The temporary loss of habitat is considered minor in terms of the available habitat in the contiguous region, and would not affect wildlife populations.

Certain facilities would be fenced so as to preclude entrance by wildlife. These include the mill, tailings pond, and mine area RIB site. There could be some limited and unavoidable mortality of small mammals and reptiles that would not be able to disperse during construction or operations. Larger mammals, birds, and many reptiles would likely move away into adjacent habitat. The Proposed Action would not be a barrier to movement, migration or breeding activity for wildlife due to its limited size and duration. Large acreages of similar habitat to that being disturbed are available in the area surrounding the project. There could be operations mortality due to road kills from vehicles on the access road, but this would not be significant or place any wildlife populations at risk in part due to the posted speed limits and the employee safety and training program.

4.13.2 No-Action Alternative

The No-Action alternative would also affect nearly 30 acres of wildlife habitat. The effects would be shorter-term as reclamation is scheduled to proceed within one year after cessation of the test mining program. These impacts would be minor.

4.14 RANGE RESOURCES

4.14.1 Proposed Action

The reduction of forage resulting from the Proposed Action would be minimal. All of the 30.31 acres of land area affected by the proposal would ultimately be reclaimed. Over the long-term, the planned reclamation activities will improve the area for grazing.

4.14.2 No-Action Alternative

The short-term reduction of available grazing area by the No-Action Alternative is considered very minor. The post-1981 disturbance will be reclaimed and returned to grazing use.

4.15 WILD HORSES AND WILD BURROS

4.15.1 Proposed Action

The impacts to wild horses and wild burrows in the project area would be very limited. There are no proposed mining activities in areas with current herds, and no migration routes would be disrupted. Impacts associated with the Sylvia Mine development are, therefore, projected to be insignificant. Safety considerations for these animals over the long-term, including fencing and sealing of the mine decline and the secondary underground escape and air vents, are described in more detail in Chapter 2, the Proposed Action.

4.15.2 No-Action Alternative

The impacts to wild horses and wild burrows would be extremely limited but could have some impact prior to the animals removal by the BLM in the spring of 2006.

4.16 SOCIOECONOMICS

4.16.1 Proposed Action

The construction and operational work forces are limited to about 24 persons each. There would be considerable overlap of personnel for these two phases of the project. The workforce is assumed to be 75% non-local (outside Denio) due the specialized skills required; and primarily single or married without accompanying family. Therefore, there would be no measurable impact on the local Denio school system. Most of the workforce is expected to come from Winnemucca or outside the immediate area. Housing in Winnemucca would not be significantly

affected. The private housing development at Denio would provide a self-contained trailer park, capable of accommodating 30 units.

The estimated annual payroll for the GPMI work force is approximately \$1,100,000. In addition, a standard multiplier of 1.57 is used to estimate the total earnings generated through mining activity in Nevada (Dobra, 1989). The operation would add to the local Humboldt County economy proportionately in terms of local hire and increased property and sales tax. The mining sector provides some of the highest salaries in the county and state. The county would also benefit directly from net-proceeds-from-mines tax. Indirect effects would be from local purchases of supplies, materials, mine consumables, and other operating needs.

No major influx of workers or families into the area would occur. This proposed small-scale operation and short life-of-mine would not significantly impact community and public services in the area. The local community of Denio would be expected to benefit economically, both directly and indirectly, as a result of the project.

4.16.2 No-Action Alternative

This action would likely be completed by October, 2006. The work force for the test mining program involves 8 to 10 miners. There would be no long-term impacts or benefits on local socioeconomics. Revenue to the county and the community of Denio under this scenario would be limited.

4.17 RECREATION

4.17.1 Proposed Action

Some limited interference with local hunting could occur if the Proposed Action is selected. User conflicts will be sporadic and short-term. Generally, this activity occurs more in the Vicksburg area and to the south. Traffic signs warning of local mining activity may serve to discourage hunting in the immediate mine area, as will the additional mine-related traffic. No impacts are anticipated to occur with respect to the Pine Forest Recreation Area and Bog Hot Creek recreation resources.

4.17.2 No-Action Alternative

The effects of the No-Action Alternative on local recreation resources would be very minor.

4.18 VISUAL RESOURCES

4.18.1 Proposed Action

The project cannot be seen from State Highway 140. From the County Road only the mine access road, office trailer, historic bunkhouse, and parking lot are in view. The primary impacts are expected to be some dust originating from the mine, haul road, and mill. Upon reclamation,

the office trailer would be removed and the disturbed area would be revegetated. The historic bunkhouse and access road would remain. Therefore, there would be short-term minimal impacts to visual resources.

The milling operation's lines and shapes generally blend with the existing residential and agricultural buildings at the Morris Ranch. The colors are also similar. The new visual impact is limited.

4.18.2 No-Action Alternative

The conditions apply the same to the No-Action Alternative as they do to the Proposed Action. Short-term impacts on the visual resources would occur. These are very limited.

4.19 PUBLIC SAFETY

4.19.1 Proposed Action

The Proposed Action would have no major impacts on public safety. Signage on Highway 140 and the County Road would warn vehicles about local mine traffic. GPMI has proposed to fence local "mine hazard areas". A Safety Superintendent provided by GPMI would enforce public and worker safety policies at the mine site. Public safety provisions for securing the site at closure are defined in NAC 513.330-513.360. The project is also required to operate in full compliance with the Mine Safety and Health Act (MSHA). Provisions the company has made for transportation safety and hazardous waste management are described in this document.

4.19.2 No-Action Alternative

No measurable affects on public safety would be expected if the No-Action Alternative is selected. A Reclamation Plan would be implemented by GPMI, as required by the BLM and NDEP-BMRR. This includes provisions for public safety and the mine and mill. Public safety concerns are currently managed by local public law enforcement services.

4.20 RIGHT-OF-WAY (R/W)

4.20.1 Proposed Action

There are three roads, two powerlines and one buried telephone cable involved in the Proposed Action. Two of the roads have FLPMA R/Ws. One is issued to Humboldt County for Road #240. The other road which has a FLPMA R/W is authorized to a private individual, Mr. Morris, for his personnel needs and historic agricultural use. The third road is an existing road, which leads to the east from County Road #240 to access the Sylvia Ashdown Mine. It is not authorized by a FLPMA R/W, nor is one required for the mines usage of it.

The mine will be using all three roads. The County Road is open to public use. For needs greater than general ingress and egress, the user would be issued a Road-Use Permit at the discretion of

Humboldt County upon application. The other two roads are located within the mine's P of O boundary. Use of these roads by the mine is subject to the 43 CFR 3800 Regulations. This use does not require a FLPMA R/W as would be required if the roads' locations were outside GMPI P of O boundary.

During the course of the project planning, it was determined that Harney Electric's aerial powerline and the Morris Road had not been authorized under a FLPMA R/W. The infrastructures were determined as existing conditions through the NEPA process. Issuance of FLPMA R/Ws have subsequently brought the infrastructure into compliance. There would be only negligible effects for this resource category.

4.20.2 No-Action Alternative

The exiting R/Ws for the power-line and buried telephone cable which service the Sylvania Mine, likely would not be required as the mine activities would not be implemented. Their reclamation would be in compliance with their specific R/W stipulations.

4.21 TRANSPORTATION

4.21.1 Proposed Action

The Proposed Action would have minimal effects on the transportation system. Local traffic associated with worker travel to and from the mine site would amount to approximately 10-15 vehicle trips per day. Ore haulage trips from the mine to the processing facility at the Morris Mill are also estimated at 10-15 trips, 7 days per week during a 4 to 5 year operating life-of-mine. The roads to the Morris property and the lead-off road to the Sylvania Ashdown Mine may be widened by GPMI as necessary to meet County and BLM road specifications for this level of use. This would be done in accordance with BLM Manual 9113. Overall, these impacts are considered minimal and short-term. Transport of petroleum and hazardous chemicals to the site would be conducted under the strict policies of the Transportation Spill Prevention and Emergency Response Plan. These mitigation measures are described later in Appendix 4.

4.21.2 No-Action Alternative

The No-Action Alternative would have limited minor short-term (about 6 months) impacts on the transportation resources of the local area.

4.22 GEOLOGY AND MINERALS

4.22.1 Proposed Action

Removal and relocation of waste rock, ore, and sand and gravel would alter the geology of the mine site and borrow area through construction of the waste-rock storage site and backfilling of waste rock and cemented alluvial material into the mined-out areas of the underground development. These activities are small in scale. Related mine planning has focused on

maximizing ore recovery, and thereby project economics, further constraining impacts on the local geology. The production of this relatively small amount of molybdenite ore would not affect worldwide molybdenum prices. It would, however, provide an important mineral to meet U.S. needs in producing alloys, fertilizers, catalysts and other uses. The Proposed Action has a low potential for acid and leachate (metals) production. Impacts are expected to be insignificant. These will be closely monitored by GPMI as part of WPCP NEV 2005105, and their approved Final P of O.

4.22.2 No-Action Alternative

Under the No-Action Alternative, the topographic effects of earlier geologic interpretation and mining activities would be mitigated by planned reclamation activities. No marketable amount of minerals (concentrate) would be produced.

4.23 WASTE ROCK CHARACTERIZATION AND MANAGEMENT

4.23.1 Proposed Action

The project would be permitted to develop and produce about 120,000 tons of ore and about 40,000 tons of waste rock. Overall, geochemical characterization tests for non-ore material demonstrates that selective handling procedures would not be required for the Sylvia mining operation. The Proposed Action would result in a small, 3.46-acre permanent waste-rock storage site at the mine. About 4,000 tons of Tertiary volcanic material is available to cap the waste-rock storage site. Initial waste characterizations show a net NP of 7 for the volcanics, and 12 for the waste dump material. Based on current monitoring of the groundwater resource, and geochemical testwork, the material is non-acid generating.

None of the waste rock samples were potentially acid-generating. Metals mobility was low as measured in the NWMP testing. Likewise, testing showed that storm water runoff and drainage from non-ore rock would meet applicable water quality criteria. Quarterly testing would be conducted by GPMI as a requirement of the processing facilities Water Pollution Control Permit.

The tests for all of the mineralized samples showed low acid-generating potential and limited metals mobility. All processed ore would be placed in the synthetically lined tailings impoundment area.

Acid generation is not expected to be a problem for several reasons: 1) ore production is scheduled to coincide with mill capacity and will be transferred to the mill almost immediately, 2) MoS₂ is the dominant sulfide and it oxidizes very slowly, 3) pyrite and chalcopyrite occur sporadically and generally in trace amounts, and 4) the pad where the ore is stored is comprised of strongly neutralizing waste rock material.

Only minor impacts are expected on local ground water, given local runoff patterns and limited recharge. Ore that will be removed and processed will be essentially “encapsulated” in the tailings pond after treatment. The weakly mineralized hanging wall will be kept in place by

mining and backfill methods, or removed as ore. The potential backfill sand tested to date proved to be strongly neutralizing, and any cement used to strengthen the backfill will add to the acid neutralization potential.

The quality of the water in the mine workings is good (see earlier Chapter 3 discussion). The potential for reaction of good quality water with sulfide ore and oxygen with the dissolution of metals during mining, is considered limited based on the test program results summarized in Section 3.3.22 and Falk and Colwell (2005).

Ground water discharge will be routinely monitored by GPMI. This includes the mine water piped to the RIB. If significant increases in pH, conductivity, or metals values are observed, the pH would be adjusted by chemical addition at the sump and/or the water storage tank. As described earlier, rapid infiltration basins would be permitted. This would allow for additional treatment, if needed. The NDEP-BMRR is currently reviewing a minor modification application to the existing WPCP which would provide for long-term land application, if needed. However, all geochemical test work on mine materials and historic water quality monitoring results suggest that areas of the mine where these materials have been exposed to oxygen do not result in lower pH values or increased metals. Recontouring and revegetation of the waste rock storage site at cessation of mining would further limit the impacts of surface water runoff during storm events.

4.23.2 No-Action Alternative

Limited impacts from historic mining activities currently exist in the project area on ground water and surface water resources. Disturbances for previous underground development and past construction of drill roads and drill sites have only minor effects on the existing water resources. Proposed bulk sampling and related concurrent reclamation would occur under this proposal. Because the area of disturbance is very limited, no significant impacts are anticipated.

5.0 CUMULATIVE IMPACTS ANALYSIS

5.1 DEFINITION OF CUMULATIVE IMPACTS

Cumulative impacts are defined as those effects on the environment that result from the incremental impact of the Proposed Action, when added to the past, present, and reasonably foreseeable future. These three action categories are described below:

- **Past Actions** occurring within the assessment area include: livestock grazing, wheat and hay farming, mineral exploration, mining, and hunting.
- **Present Actions** within the assessment area include: livestock grazing, mineral exploration, and hunting.
- **Reasonably Foreseeable Future Actions** within the assessment area include: livestock grazing, irrigated hay farming, dry farming, mineral exploration, mining and hunting.

The cumulative impact analysis area for this EA begins on the east of the Hot Bog Valley, and traverses diagonally to the north, west, and southwest directions, comprising a six-mile reach. The land ownership is a mix of public and private lands shown on Figure 11, Cumulative Impacts Area Map. All cumulative resource values for the Proposed Action shown in Table 10 were evaluated. A reference section tracking list is also provided for convenience.

Table 10. Cumulative Impacts Survey by Affected Resource Category

Cumulative Resource Category	Present & Affected	Level of Cumulative Impact	Reference Section
Air Quality	X	MINOR-SD	5.3.1
Cultural Resources	X	MINOR-SD	5.3.2
Invasive Species, Noxious Weeds	X	MINOR-SD	5.3.3
Migratory Birds	X	VL-SD	5.3.4
Native American Religious Concerns	X	MINOR-SD	5.3.5
Wastes, Hazardous or Solid	X	VL-SD	5.3.6
Water Resources (Surface & GW)	X	MINOR-SD	5.3.7
Wilderness	X	VL-SD	5.3.8
Vegetation	X	VL-SD	5.3.9
Soils	X	MINOR-SD	5.3.10
Wildlife	X	VL-SD	5.3.11
Range Resources	X	VL-SD	5.3.12
Wild Horses & Wild Burrows	X	VL-SD	5.3.13
Socioeconomics	X	VL-SD	5.3.14
Recreation	X	VL-SD	5.3.15
Key: Very Low = VL Minor = MINOR Moderate = MOD Short Duration (SD) = less than 10 yrs Long Term (LT)= more than 10 yrs			

Cumulative Resource Category	Present & Affected	Level of Cumulative Impact	Reference Section
Visual Resources	X	VL-SD	5.3.16
Public Safety	X	VL-SD	5.3.17
Right-of-Way	X	VL-SD	5.3.18
Transportation	X	VL-SD	5.3.19
Geology and Minerals	X	MINOR-SD	5.3.20
Waste Rock Characterization	X	MINOR-LT	5.3.21
Key: Very Low = VL Minor = MINOR Moderate = MOD Short Duration (SD) = less than 10 yrs Long Term (LT)= more than 10 yrs			

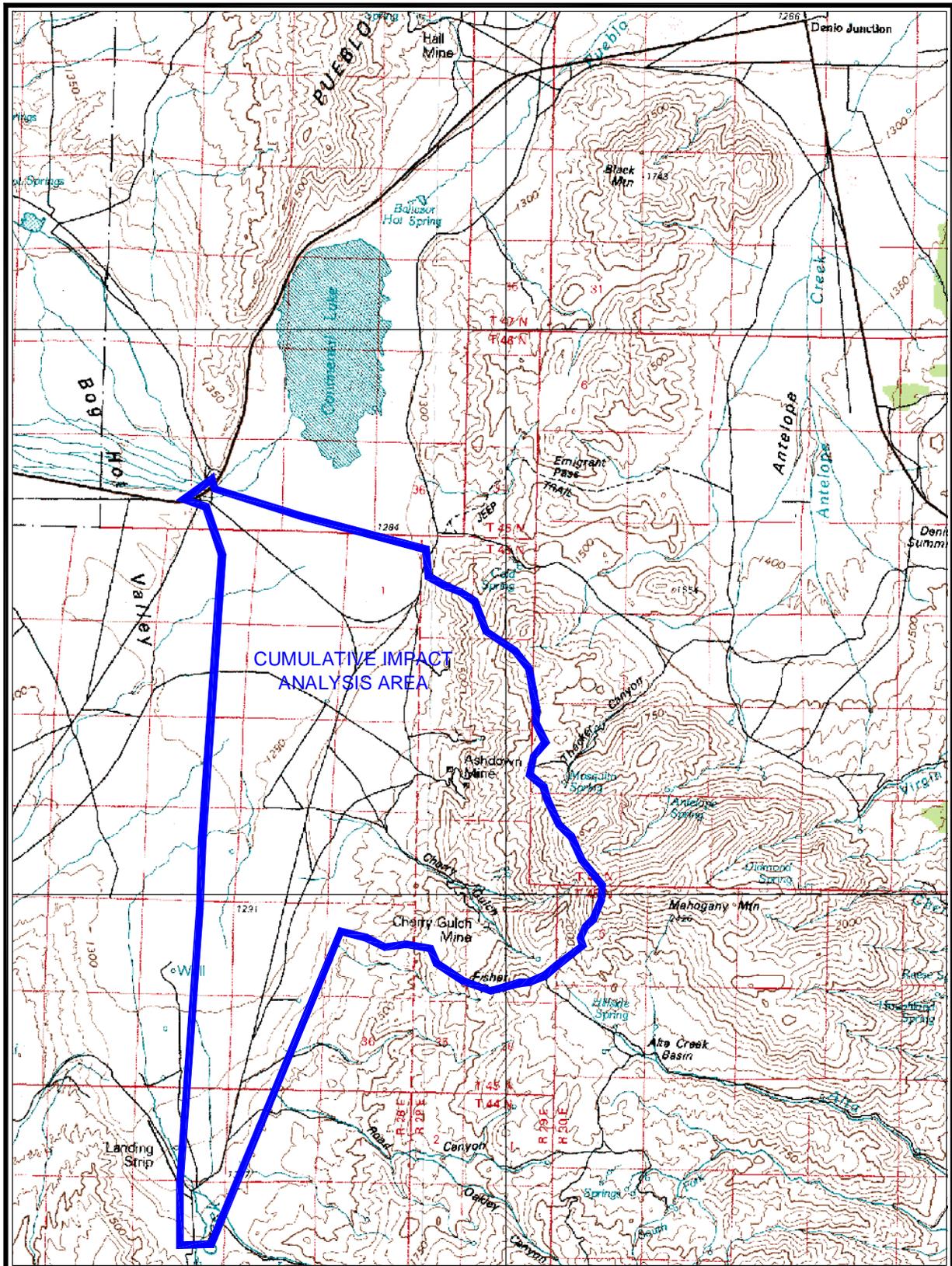
5.2 DEFINITION OF REASONABLY FORESEEABLE FUTURE ACTIONS

In order to assess cumulative impacts, GPMI developed a description of the most likely “Reasonably Foreseeable Future Actions” (RFFA). This is based upon a review of all available historic data on the molybdenum deposit(s) at Ashdown, including surface and underground sampling using both reverse circulation and core drilling techniques, underground bulk sampling of the Sylvia vein, data interpretation, and preliminary conceptual mine planning. Beginning in the third quarter of 2004, molybdenum oxide prices began to rise significantly from approximately \$4 per pound to \$35 per pound in the first quarter of 2005. The price currently remains above \$20 per pound. The data was analyzed statistically, and an in-house resource model was constructed to estimate the amount of “mineralized material” contained within the known mineralized area.

The modeling results suggest that within the mine area there may be as much as 370,000 tons of mineralized material using a 0.3% Mo cutoff. This modeling was done as part of the internal conceptual mine planning process. It should be noted that any future actions in the Cumulative Impacts Study Area would be subject to review under NEPA.

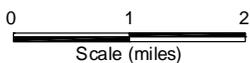
The 120,000 tons to be mined under the Proposed Action mine plan comprise a portion of this RFFA estimate. It is, therefore, reasonable to assume that further development work could result in a portion of the global resource estimate being converted into mineable economic “reserves” over time provided a favorable molybdenum price environment continues. Under this scenario, GPMI might reasonably expect up to 300,000 tons of material could be “mineable”. This could amount to an additional 180,000 tons of material over what is currently being considered.

Future work to delineate these additional reserves would consist of surface and underground drilling, and underground development work. The surface work would be conducted from existing disturbance on BLM ground near the mine site, and other exploration roads that have yet to be designed. Underground, reserves would be “blocked out” by driving raises and horizontal sublevel development (sill) drifts along the vein, where bulk samples would be recovered and analyzed. Muck from development work in the vein would be sent to the mill for processing. Longhole drilling, varying from a few feet to several hundred feet, would be staged from the



Base Map: USGS 1:100,000
Denio, NV

File: SylvEA_Fig7_Cumulative
Drawn: elf 09/30/05



Ashdown Project
Humboldt County, NV

Figure 7:
CUMULATIVE IMPACT ANALYSIS AREA

Golden Phoenix Minerals, Inc.



underground drifts and raises. This drilling would be used to plan additional development and determine ore widths.

Additional waste rock would also be mined to provide haulage access to the newly developed ore. The waste generated from this reasonably foreseeable mining scenario is expected to be in the range of 10,000 to 20,000 tons. This would be in addition to the 40,000 tons originally described in the Proposed Action. This quantity would be accommodated in the existing waste rock storage area. The tailings from processing of any additional material would be treated at the Morris Mill in a secondary tailings facility on patented land. This facility would be constructed by GPMI for that purpose, and would require permitting by the NDEP-BMRR.

The mine-life for the potential 300,000 tons of material would be extended to approximately 10 years at the proposed mining and milling rates currently being permitted. The physical restrictions of mining a narrow vein with underground methods prohibit a significant increase in production rates.

Surface and ground water management activities for this RFFA would effectively “mirror” those activities described for the Proposed Action, including mitigation activities and final reclamation. This would also involve covering or capping of development rock deposited in the existing mine waste dump. Capping would be done using stockpiled Tertiary volcanic waste material at the end of the reclamation program, if necessary.

BMPs like those already described for the Proposed Action would be employed by GPMI to mitigate potential stormwater impacts under this mining scenario. A similar scenario would also be anticipated for managing ground water encountered during mining. The mining activity and waste management needs would be subject to additional NEPA analysis by the BLM. Likewise, any expansion of the tailings facilities at the Morris Mill to accommodate up to 180,000 tons of new tailings would be subject to the permitting requirements of the NDEP-BMRR Water Pollution Control Plan, as previously noted. A revised Reclamation Plan would also be required.

5.3 CUMULATIVE & REASONABLY FORESEEABLE IMPACTS

5.3.1 Air Quality

Cumulative impacts at the Sylvania Mine and Morris Mill for the Ashdown RFFA would include past activities such as historic mining, exploration, livestock grazing, recreational use, and current and future actions of mining and mineral processing of up to 180,000 additional tons of molybdenum ore. These activities would create increased particulate over a longer period of time (about three to five additional years). Wind-blown dust would be generated short-term during road construction and construction of the small-scale mineral processing facility. Likewise, increased dust and vehicle emissions would be generated by the ore haulage trucks. An estimated eight to ten trips per day would be required by the 10 to 25 ton haul trucks. Regular watering and surfactant applications would minimize these cumulative impacts. Additional limited trips for the mine workers, supplies and materials would also be required. Emissions from the crusher would be controlled by water sprays and chemicals, as needed. TSP

and PM₁₀ concentrations are expected to be well within applicable standards. These concentrations would be the same as those estimated for the Proposed Action. Air quality impacts within the cumulative environmental study area are considered minor and of short-term duration.

Air quality in the project area would not be significantly affected by reasonably foreseeable exploration, mining, agricultural or recreation activities. Any new mining activities would most likely be similar to those for the Proposed Action, and would continue at the level of a “small-scale mining facility”. The annual and 24-hour contributions from all these sources would not cause air in the local region to degrade below natural or state air quality standards.

5.3.2 Cultural Resources

Cumulative impacts for the Sylvia Mine and Morris Mill would be associated with any proposed expansions of the mining or milling processes. No significant changes to the “mining footprint” (that area affected by mine development) are planned by GPMI. Waste rock would be stored within the existing APE for the additional mining associated with the RFFA. No cumulative impacts have been identified to cultural resources within this area .

Mineral processing at the Morris Mill would affect up to 10 additional acres located immediately adjacent to the planned tailings pond site. No adverse effects were identified for any cultural resource property or feature at this location (see Section 4.2.1 earlier). General recommendations for avoidance mitigation would be implemented by GPMI, should the RFFA be constructed at the mill site.

5.3.3 Invasive Species, Noxious Weeds

Similar mitigation requirements for the RFFA mine area would apply to the Morris Mill facility. The reclamation standards and noxious weed management requirements described for the Proposed Action would apply. These weed control programs are required in the Reclamation Permit issued by the NDEP-BMRR and in NRS Chapter 555.05.

5.3.4 Migratory Birds

Although migratory birds are known to fly through the project area, it does not have surface water for birds in the defined impact area. Historically, recreational hunting resulted in regulatory take of some animals. A small area of upland habitat was also lost as a result of mining and other uses like agriculture. Potential RFFA involving mining are very limited and concentrated within the Proposed Action project area. Expansion of the Morris Mill tailings ponds could attract waterfowl. The milling operation does not use cyanide as a primary flotation process. Other residual process chemicals in the pond would occur at very low concentrations, which are not considered harmful to wildlife. No other migratory birds would be expected to be impacted by the longer-term operation. Operating procedures and mitigation outlined for the Proposed Action would be sufficient since the same area disturbance is involved. Monitoring programs in place would also identify additional mitigation, if needed.

Other RFFA, such as grazing and agricultural development, would not significantly impact migratory bird populations in the area of impact. Potential new exploration and mining activities would be managed similarly to the Proposed Action Alternative, and be subject to additional permitting requirements.

5.3.5 Native American Religious Concerns

None of the environmental impacts associated with the RFFA project, either mining or processing, would affect Native American religious concerns. Because no places were identified within the project area, either during archival or literature research or through contact with Tribal representatives, the Proposed Action would not result in any cumulative impacts to these types or places.

5.3.6 Hazardous Materials or Solid Wastes

No previous impacts from the use of hazardous materials are known to occur at the site. All wastes at the Morris Mill under the Proposed Action and RFFA would be managed according to the requirements of the WPCP as defined by the NDEP-BMRR and other applicable state, federal, and local permits and authorizations (see Appendix 1). Any new tailings impoundment would at a minimum be lined with 60-mil HDPE geomembrane over a prepared base, and include sufficient capacity to also contain the design storm plus one foot of freeboard during operations. The mill building is similarly designed to contain 110% of all fluids in the system. At closure, suitable cover material would be placed in the pond up to the level of the berms. The pond would then be recontoured and revegetated as is described for the Proposed Action. The ore stockpile area at the mill would be lined and contained. All fuels would be stored in contained, lined storage areas, and all chemicals would be kept inside the mill at designated locations. Any impacts would be mitigated by existing or future regulatory programs.

RFFA related to mining would not result in different approaches to how hazardous or solid waste are managed. The RFFA would be managed according to the existing Transportation Spill Prevention and Emergency Response Plan (Appendix 4), further mitigating these potential impacts.

Since the potential for accidents involving trucks delivering hazardous material to the site is very low, cumulative impacts resulting from continued shipment of hazardous materials to the Ashdown Project is also minimal. All handling protocols described for the Proposed Action would be implemented by GPMI or other mine operators as required in applicable state and federal regulations.

5.3.7 Water Resources (Surface and Ground Water Quality)

Water resources at the mine site and the Morris property are limited. No perennial surface water exists in the project area. The intermittent spring located upgradient of the Sylvia portal produces a very limited flow. There is no known hydraulic connection between the surface at the mill site and local ground water, except potentially the Morris water supply well. Water

occurrence and proposed water management approaches by GPMI would not create a connection. The flat area associated with the entire construction zone of the mill is devoid of seeps and springs. GPMI has proposed in their WPCP application that the calculated 100-year, 24 hour storm (1.4 cfs) would be routed around the processing facility in an engineered storm diversion channel.

Further, the drainage from the entire upland watershed, which encompasses about 2.59 square miles is currently naturally retarded, and diverted down the borrow channel of the county road to the south. Any expansion to the totally-contained small-scale processing facility would be required to meet the State's zero discharge standard. Surface and ground water resources of the State of Nevada would not be degraded by the proposed or future RFFA associated with mining.

RFFA mining and processing scenario would be conducted in a similar manner as for the Proposed Action. About 9 additional acres of land area at the Morris Mill would be required for new tailings ponds. These activities would be regulated by NDEP-BMRR. The impacts are not known, but are considered limited and would be short term (less than 5 years). No future large scale agriculture or grazing related RFFA are known to exist for the project area.

5.3.8 Wilderness Resources

Past actions related to historic mining activities and agricultural development have not affected wilderness resources in the project area. No significant impacts would occur on the Alder Creek and Blue Lakes Wilderness Study Areas as a result of expansion of the Sylvia Mine under the RFFA mining scenario and continued operation of the Morris Mill beyond the currently estimated 5 year LOM. Under the RFFA mining scenario, the mine and mill areas of disturbance would not significantly increase in size. This will have no cumulative affect on the WSA's.

5.3.9 Vegetation

Cumulative impacts to native vegetation historically have occurred in the project area. The road and powerline R/W to the Morris Mill would be maintained after the project by Claude Edward Morris for agricultural purposes. The R/W has been utilized previously by the resident. No federally-listed Threatened or Endangered plant species were observed in the study area. Therefore, none would be impacted. Claude Edward Morris intends to utilize the mill structure/building for long-term agricultural support uses after GPMI has completed all closure requirements. If additional molybdenite reserves were developed by GPMI or another mining company, a second tailings pond would be required. About 9 new acres of land disturbance and associated vegetation removal would also occur under the RFFA mining scenario. Proposed reclamation at the mill site would involve stabilizing and filling the second tailings impoundment, then covering/capping with suitable material, recontouring, and revegetating. Overall, post-reclamation cumulative impacts to vegetation and soils would be the same as for the Proposed Action, and are projected to be very limited.

Similar permitting, mitigation and reclamation requirements would apply to any new mining and mineral processing facilities, which could occur in the reasonably foreseeable future. Therefore,

these impacts to vegetation would also be low since they are confined to a small area. No major grazing or agricultural development is currently planned for the general project area. No associated significant long-term impacts are anticipated in the reasonably foreseeable future.

5.3.10 Soils

Cumulative impacts to soils occurred during past actions as a result of vehicle traffic, mining and exploration, and grazing. Potential effects related to the RFFA and ongoing mine expansion would be minor. Local materials amenable to reclamation would have been stockpiled for that use. The area is flat, and no other significant excavation would be needed for the mill and ancillary facilities. The most likely cumulative impacts on soils would be associated with the construction of additional tailings ponds. This development would be subject to NDEP-BMRR permitting requirements, and could impact about 10 additional acres of land. Reclamation requirements likely to be imposed on these activities would be similar to or more stringent than current regulations.

Agricultural development in the area is constrained by soil types and ground water availability. Future cumulative impacts would be minor due to these considerations.

5.3.11 Wildlife

Past minor cumulative impacts to wildlife and vegetation resources in the area have resulted from mining, exploration, agriculture, grazing, and recreation. Impacts related to current actions are considered low given the area of impact. New impacts associated with the reasonably foreseeable mine project would also be limited and of short duration. The amount of habitat newly disturbed for the RFFA is quite small (10 acres), in comparison to the overall wildlife habitat in the area. Some incidental wildlife mortalities are expected to occur due to increased traffic from the mining activities. These will be insignificant. These impacts would be largely mitigated by the installation of wildlife fencing at the tailings facility. Strict speed limits will be posted on the access road. Employees will also receive environmental training annually. This training addresses local wildlife resource values, sensitive species considerations, and other local wildlife management concerns. GPMI would also prohibit hunting by the employees on the project site during operations.

No significant impacts on wildlife resources with the reasonably foreseeable grazing or agricultural development are anticipated to occur. All these related impacts are similar to those described for the Proposed Action. They would be localized and short-term in duration.

5.3.12 Range Resources

Cumulative impacts to local range resources associated with past development of mining and agriculture are considered very low. Final reclamation activities planned for the project involving revegetation of the project site will mitigate these effects. Much of the area was previously impacted by mining, agriculture and grazing activities. All related RFFA within the

defined area of impact (Figure 11) would result in limited effects, especially if all permitting and reclamation requirements are implemented at mining closure.

5.3.13 Wild Horses and Wild Burros

No past, present or RFFA cumulative impacts are forecasted for this resource category. No herds are known to inhabit the area. No transplanting or relocation of new herds into the project area is planned in the foreseeable future. A small herd was recently moved out of the area.

5.3.14 Socioeconomic

Cumulative impacts associated with past, present and RFFA on the socioeconomic resources in the project area would be expected to be very limited. Even a potential doubling of mining revenues in the area of impact, which could occur under the reasonably foreseeable mining scenario, would be insignificant in comparison to the rest of the county, where mining accounted for nearly 1,726 jobs in 2004. If the mining workforce in the cumulative impact area were to double during the active life of the Sylvia Mine, this would account for only a maximum of 50 jobs. This is considered insignificant. Likewise, this increased development would not adversely effect schools, housing, water supplies or wastewater treatment given its scale and the likelihood that associated growth would be similarly accommodated by private developers in the area of Denio Junction.

5.3.15 Recreation

Neither the most likely RFFA mining development forecast (i.e. double the scale of current mining), nor the most ambitious reasonably foreseeable agricultural or grazing scenario would measurably impact the local recreation resources. Some interference or conflicts with local hunting activities could occur. These are expected to be isolated situations.

5.3.16 Visual Resources

Some historic impacts consisting of changes in line, form, color and texture have occurred due to exploration and mining development at the Ashdown site. The mine and mill sites are located in a Visual Resource Management (VRM) Class IV area. This allows for management activities that require modification of the existing landscape. The proposed mill facilities layout has been reduced to minimize both visual impacts, and improve operating efficiencies. The RFFA mine project, as defined in this EA, would create no long-term visual impacts except the mill building silhouette would continue. This expansion which would require one additional tailings pond, would be of short duration, and would not affect the current landscape noticeably.

The most likely combined mining and agricultural cumulative impact development scenario would also result in moderate, but short-term impacts to the visual resources in the area. Under this level of mining development, the total disturbed acreage in the area of impact could double to about 60 acres. This assumes if both the mine area (underground mining – unlikely) and mill area (surface construction – likely) were to increase in size in proportion to the Proposed Action.

This compares to the entire area of impact, which is about 8,300 acres. The natural setting would be slightly altered under the RFFA project(s). However, this level of mine development still could not be viewed from State Highway 140. Only the existing access road, office trailers, support buildings, parking area, and the historic bunkhouse would be in view. These facilities would be removed with the exception of the historic bunkhouse and main access road, and reclaimed at cessation of mining. The additional tailings pond would be largely unseen from key view points.

No other impacts associated with the most likely RFFA are forecasted for this resource category. No impacts beyond the existing condition would result due to the final reclaimed configuration of the mining project.

5.3.17 Public Safety

No significant cumulative impacts on public safety are forecast as the result of the most likely RFFA mining and/or cumulative agricultural development scenario in the Ashdown area.

5.3.18 Right-of-Way (R/W)

Past R/W actions are discussed in Section 4.20 for the Proposed Action. The reasonably foreseeable cumulative mining development scenario in the Ashdown Project area of impact could cause the need for additional R/W's to be applied for the BLM. This need is, however, considered unlikely. All major long-term exploration activities to be conducted by GPMI under this EA and those described in the Final P of O would be conducted from existing disturbed exploration roads. These are served by an existing R/W. Further, any new R/W's would include specific conditions on engineering, construction and reclamation. These would limit potential impacts. The historic and current development trends in the area of analysis also do not show a notable increase in needs, which would require FLPMA R/Ws.

5.3.19 Transportation

Potential cumulative transportation impacts for additional mining and agricultural development would be moderate in scale and of short duration. Limited additional local daily road use (Highway 140, the County Road, and local access) may be required for the RFFA. The Transportation Spill Prevention and Emergency Resource Plan includes policies to be adopted and implemented by GPMI as "standard operating procedures". These include restrictions on types of vehicles used to transport fuel and chemicals, driving speed (maximum 25 mph in mine area), loading sequence of transport trucks, delivery limitation due to weather, loading and off-loading safeguards, and other requirements. Some additional tourism and "drive-through" heavy trucking may also occur as the Denio Junction Truck Stop expands its facilities. This is not directly related to the proposed project.

5.3.20 Geology and Minerals

The potential cumulative impacts to geological and mineral resources associated with the Proposed Action are expected to be minor and short-term. These primarily involve the potential for processing an additional 180,000 tons of ore at the Morris Mill. The removal of up to 300,000 total tons of molybdenite ore and development rock under the RFFA of the mine plan also would not have significant effects on the overall “mining footprint” of land disturbance and related environmental impacts caused by the Proposed Action. Approximately 10,000 to 20,000 additional tons of development rock would be generated in recovering up to 180,000 tons of new ore. This represents a 25% - 50% increase in the total quantity of development rock. There would be little new disturbance on federal lands created by this level of expansion of the Ashdown Mine. Expansion of the production schedule and the tailings facility would extend the life of the project for up to 5 additional years. New surface disturbance on private land at the mill facility necessary to accommodate the tailings management needs would involve less than 10 acres. Alternatively, the mill through-put could be expanded to 150-200 tons per day and shorten the mine life.

In either case, the operation would be subject to supplemental permitting by the NDEP-BMRR. Mitigation and monitoring requirements would be expected to be very similar to those for the Proposed Action. Neither the Proposed Action nor the RFFA would be expected to materially affect mineral prices. However, both could positively impact molybdenum production on the short-term.

5.3.21 Waste Rock Characterization

Cumulative impacts related to historic mining development and the Proposed Action and waste rock management needs are minor and short-term, as described earlier in detail in Chapter 4. No waste rock would be handled at the Morris Mill. All processed ore would be conveyed into the tailings pond via a slurry pipeline, and reclaimed in place at the time the facility is closed.

The most likely RFFA mine development scenario would involve mining of up to 20,000 additional tons of waste rock and about 180,000 tons of ore. The existing waste rock site has sufficient capacity to store this material. Waste characteristics of this material are not considered adverse, but would be monitored on an ongoing basis. Additional ponds would need to be constructed at the mill site. Both these activities would result in minor long-term impacts (about 10 years in total duration) related to waste management and final reclamation. They would require that a new P of O be filed with the BLM, which would be subject to additional NEPA review. New permitting and reclamation requirements administered by NDEP-BMRR would also need to be met prior to approval of this development scenario.

6.0 PROPOSED MITIGATION AND MONITORING

Mitigation measures included in this NEPA analysis that are applicable would be applied as part of the Ashdown Sylvia Project. The Winnemucca Field Office of the BLM would be responsible for ensuring compliance with the CFR 3809 regulations, and these mitigation and monitoring requirements.

No additional environmental protection mitigation or monitoring other than that listed for the Proposed Action in Chapter 2 is necessary. Other environmental requirements would be set forth by NDEP in the Water Pollution Control Permit and Reclamation Permit, and as specified in applicable permits and authorizations listed in Appendix 1, List of Permits and Approvals.

7.0 CONSULTATION AND COORDINATION

7.1 INTENSITY OF PUBLIC INTEREST AND RECORD OF CONTACTS

Scoping has been completed for this project. A Public Notice was published in the Humboldt Sun.

On October 25th, 2004 Golden Phoenix made a presentation to the Board of County Commissioners. The presentation served as notification of the project owners information, landowner's information, and description of related planned activities and estimated timelines. Applications for a Special Use Permit and Building Permit have been approved by Humboldt County.

Additionally, a Project Summary and Scoping Document and a proposed schedule for the Sylvia Mine Plan EA was mailed to approximately 55 interested publics on July 5, 2005 soliciting comments. A public notice was also published in the Winnemucca newspaper. On July 21, 2005 an interagency meeting involving the NDEP-BMRR and BLM was conducted in Carson City, Nevada. Consultation letters were also sent to local Native American Tribal entities. The most important elements are summarized below:

In October, 2005 consultation letters were sent to local Tribal entities concerning cultural resource consultation by the Winnemucca District BLM Archaeologist. Letters were also sent to the U.S. Fish and Wildlife Service and Nevada Department of Wildlife concerning sensitive and Threatened and Endangered Species. The Nevada Natural Heritage Program was also contacted.

7.2 AGENCY AND PUBLIC INVOLVEMENT

The Preliminary Environmental Assessment has a 30-day public comment and will be made available by:

1. publishing the availability of the EA in the Humboldt Sun public notice section;
2. the EA would be made available on the BLM Winnemucca Field Office website: <http://www.nv.blm.gov/Winnemucca/>
3. the EA would be made available in the Humboldt County Public Library;
4. the EA would be made available in the Winnemucca Field Office upon request; and
5. individual mailings would be made to those requesting copies.

7.3 INTERNAL BLM REVIEW

The following BLM Winnemucca Field Office staff participated in the writing or in the review of the EA:

Project Lead	Scott Richey
Environmental Planner/Coordinator	Lynn Harrison
Air Quality	Scott Richey
Cultural	Regina Smith
Noxious Weeds	Derek Messmer
Wildlife & Sensitive Species	Clarence Covert
Migratory Birds	Clarence Covert
Threatened & Endangered Species	Clarence Covert
Vegetation	Mike Zielinski
Water Resources	Craig Drake
Engineering	Chuck Schlarb
Geology and Acid Rock Drainage	Scott Richey
Soils	Mike Zielinski
Hazardous Materials	Rod Herrick
Realty	Lynn Trost
Native American Consultation	Regina Smith
Wild Horse and Burro	Heidi Hopkins
Socio-economic	Lynn Harrison
Range	Derek Messmer
Visual Resource Management	Delores Cates
Recreation	Gerald Gulley

7.4 PREPARERS

The following Preparers participated in the environmental baseline investigations and preparation of the EA:

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Robert (Rick) Richins - Project Manager, RTR Resource Management, Inc.

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Christine Whittaker - Vegetation/Soils, Montgomery Watson Harza, Inc.

Steve Cox - Wildlife, Montgomery Watson Harza, Inc.

Michael Polk - Archaeology/Native American Traditional Values, Sagebrush Consultants

Andrew Williamson - Archaeology/Native American Traditional Values, Sagebrush Consultants

Golden Phoenix Minerals, Inc. (GPMI)

Dave Caldwell - Plan of Operations
Edward Falk - Plan of Operations, EA
Wayne Colwell - Plan of Operations, EA

Persons, Groups or Agencies Contacted

Humboldt County Commissioners
U.S. Fish & Wildlife Service
Nevada Natural Heritage Program
Nevada Department Environmental Protection
Nevada Department of Wildlife

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